

THE IRON AGE

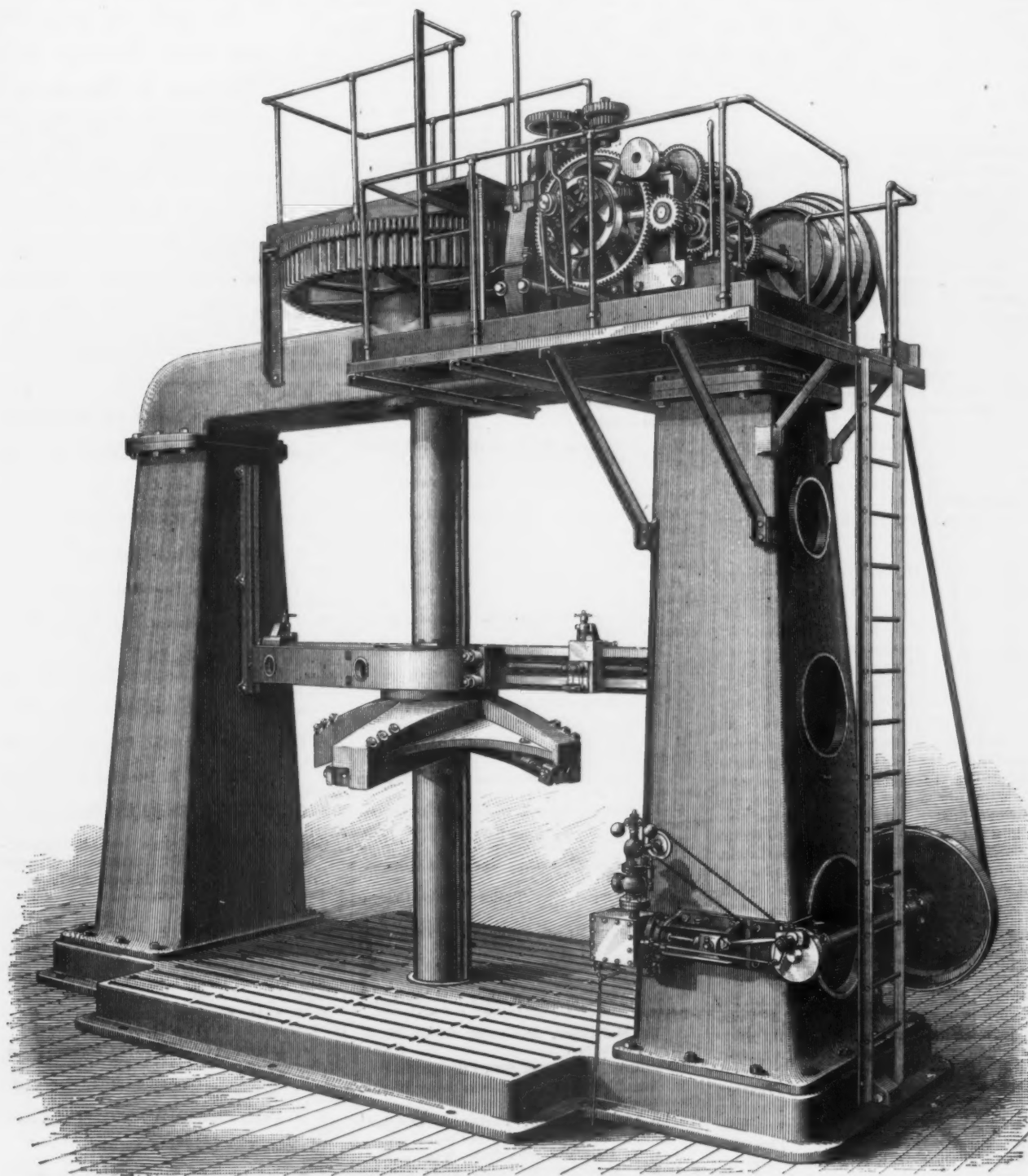
THURSDAY, MAY 21, 1891.

Vertical Cylinder-Boring Machine.

Wm. Sellers & Co. (Incorporated) of Philadelphia have just finished for the Newport News Shipbuilding and Dry Dock Company the vertical cylinder-

are 13 feet apart, and the height from the sole plate to the underside of the boring head when in its highest position is 10 feet. The boring heads are raised and lowered by hand or power, and have feeds varying from $\frac{1}{16}$ inch to $\frac{1}{4}$ inch or more

waste of time. The feed, which is self acting, can be thrown in or out at any time by the hand lever, and the boring or facing head can then be moved slowly by hand or quickly by power in either direction through the action of reversing fric-



VERTICAL CYLINDER BORING MACHINE, BUILT FOR THE NEWPORT NEWS SHIPBUILDING AND DRY DOCK COMPANY, BY WILLIAM SELLERS & CO. (INCORPORATED).

boring machine of which we here present an engraving. The machine is provided with a boring bar 16 inches diameter, with boring heads capable of boring cylinders 48 inches to 108 inches in diameter, and also with a double facing head, each having a compound slide rest to face 120 inches diameter. The vertical standards

if desired. The boring bar is so arranged that it can be lifted out through the top bearing without disturbing the driving gear or feed gear, while in all other machines of this character of which we have knowledge the removal of the bar involves first taking off the feed gear, which, of course, is troublesome and a

tion clutches. This can be done while the boring bar is in motion in either direction, or the heads can be moved by power while the boring bar is at rest, the quick travel and the driving gear being made independent by means of a cut-off friction clutch. The feed is varied by a set of change wheels, and can be set for any de-

sired motion in either direction, to bore from the top down or from the bottom up. The cutter heads are so arranged that the same tools can be used to bore in either direction, and for this reason the boring bar may be driven either way by a straight or crossed belt from the engine. A small horizontal high-speed engine is attached to one of the standards, and carries on its crank shaft a cone pulley to vary the speed of the boring bar. In addition to the changes of speed thus given, the speed of the engine can also be varied by an adjustable governor if desired. Power is transmitted from the driving cone to the boring bar through straight spur and bevel gearing, thus making the driving gear more efficient and durable than can be obtained by the use of worm gearing.

Payments in Silver.

Payments in silver certificates and Treasury notes in the first ten days of May, says the *Tribune*, amounted to 64.5 per cent. of all payments of customs duties at New York, payments in United States notes to 10.8 per cent., and payments in gold coin and certificates to only 24.7 per cent. A year ago the proportion in May was 93.8 per cent. gold, 2.6 per cent. silver and 3.6 per cent. legal tenders. Taken by itself, this change certainly merits attention.

After the monetary disturbance of 1884 silver certificates were for a time used largely, and in 1886 legal tenders, but this movement only relieved a superfluity of certain kinds of currency in circulation. The following shows the percentage of each kind of money used in May of each year, 1878-1890, in April of this year, and in May to the 10th:

	Gold coin.	Silver coin.	Certificates.	U. S. Notes.
1878, May..	6.2	0.8	75.7	15.8
1879, May..	0.9	0.2	0.1	4.7
1880, May..	32.1	0.2	...	27.1
1881, May..	45.9	0.1	...	50.9
1882, May..	70.7	0.2	...	23.4
1883, May..	4.7	0.1	62.2	26.1
1884, May..	3.3	0.1	46.5	35.3
1885, May..	0.7	0.1	43.0	37.4
1886, May..	0.8	0.3	12.2	15.3
1887, May..	1.0	0.4	72.4	14.1
1888, May..	0.9	0.4	69.6	16.1
1889, May..	0.2	0.1	81.5	5.9
1890, May..	0.2	0.1	93.6	2.5
1891, Apr. 10	0.2	...	47.0	20.0
1891, May 9	0.2	...	24.5	29.4

Examination of these figures is well calculated to dispel any unreasonable alarm, because the Treasury just now receives large amounts in new Treasury notes and silver certificates, for they show that similar and even greater movements to secure virtual redemption in gold of particular kinds of money, by their use in place of gold at custom houses, have passed without bad results.

At the same time, the figures show plainly that the silver certificates and Treasury notes have been in circulation so far beyond the requirements of ordinary business that they gravitate back to the Treasury in usual amounts. In the present state of the finances this is information which it would not be wise to ignore. By forcing into circulation just now more of these notes and certificates the Treasury could only increase a difficulty which it has to meet, and will have to meet so long as the issues of them continue. This is a time of the year, it is true, at which the supply of money required in ordinary business is not as large as it is in the fall, so that a return of some superfluous currency to the Treasury is natural. The only point is that the silver certificates and Treasury notes come back rather than other kinds of currency.

Admiral Walker, U. S. N., who has heretofore attached a high value to sail power as auxiliary to steam, has so far modified his views as to believe that on twin-screw vessels sails are a useless incumbrance.

The Boiler Makers.

St. Louis Meeting of the American Boiler Manufacturers' Association.

The fourth annual convention of the American Boiler Manufacturers' Association was held in St. Louis at the Lindell Hotel, on the 12th, 13th and 14th insts. The local membership had prepared an elaborate programme for the entertainment of the visiting members, and as the weather was propitious the social features of the meeting were a most conspicuous success. The hospitality of the St. Louis boilermakers extended to the reception of their visitors at the incoming trains, whence they were escorted to the hotel in carriages. Thoughtful courtesies were continued during the whole time of the convention, and undoubtedly have made a most lasting impression on all the visitors. The social features of the meeting were, however, not permitted to usurp the main business in hand, which was the consideration of practical questions, and the sessions of the association were all well attended, while a lively interest was manifested in the various topics that came up for discussion. The following is a list of the members and visitors present, a large number of the latter having been specially invited by the officers of the association to participate in the consideration of matters of mutual interest:

Jos. F. Wangler, St. Louis Boiler and Sheet Iron Works, St. Louis.
 Richard Garstang, Southern Boiler and Sheet Iron Works, St. Louis.
 Richard Garstang, Jr., Southern Boiler and Sheet Iron Works, St. Louis.
 Robert Jones, Robert Jones & Co., Cincinnati, Ohio.
 Henry Grimm, Quincy Boiler Company, Quincy, Ill.
 Wm. Spiegel, McIlvaine & Spiegel, Cincinnati, Ohio.
 J. E. McDonnell, Des Moines Mfg. and Supply Company, Des Moines, Iowa.
 Chas. Kroeschell, Kroeschell Bros., Chicago.
 Thos. J. Driskell, Columbus, Ohio.
 B. G. Wood, Nashville, Tenn.
 J. B. Campbell, McNeil Boiler Works, Akron, Ohio.
 D. Lennox, Lennox Machine Company, Marshalltown, Iowa.
 F. L. Dickey, Iowa Iron Works, Dubuque, Iowa.
 M. E. Herbert, St. Joseph, Mo.
 R. B. Collier, Columbus Machine Company, Columbus, Ohio.
 Samuel Borger, City Boiler Works, Columbus, Ohio.
 S. Severance, Jr., S. Severance, Pittsburgh, Pa.
 John Faessler, Moberly Machine Works, Moberly, Mo.
 T. Johnston, Johnston Bros., Ferrysburg, Mich.
 G. L. McGregor, McGregor Steam Boiler Works, Chicago.
 R. Munroe, Munroe & Son, Pittsburgh, Pa.
 D. Connelly, Cleveland Steam Boiler Works, Cleveland, Ohio.
 John C. Porter, Jr., Porter & Douthett Company, Limited, Allegheny, Pa.
 Wm. T. Bate and John Baté, Wm. T. Bate & Son's Montgomery Boiler and Machine Works, Conshohocken, Pa.
 J. Mathews, South Bend Boiler Works, South Bend, Ind.
 John Wilson, Mid-Continent Boiler and Sheet Iron Works, Omaha, Neb.
 Wm. J. Wickes, Wickes Bros. Boiler Works, East Saginaw, Mich.
 R. Turner, Iowa Boiler Works, Des Moines, Iowa.
 John McDonnell, Des Moines, Iowa.
 James M. Latimer, Ripley & Bronson, Des Moines, Iowa.
 Philip Rohan, Rohan Bros. Boiler Mfg. Company, St. Louis.
 James Lappan, Pittsburgh, Pa.

John O'Brien, John O'Brien & Co., St. Louis.
 E. D. Meier, Heine Safety Boiler Company, St. Louis.
 A. T. Douthett, Porter & Douthett Company, Limited, Allegheny, Pa.
 J. McFarland, Chicago.
 Chris Murphy, Jos. T. Ryerson & Son, Chicago.
 Chas. F. Foster, St. Joseph, Mo.
 James Kenny, St. Paul, Minn.
 Mr. Geary, Oil City Boiler Works, Oil City, Pa.
 James Rees, Pittsburgh.
 Henry Brobst, Brobst & Himes, Grand Rapids, Mich.
 H. Vail, Western Tube Company, Kewanee, Ill.
 E. C. Lewis, Bement, Miles & Co., Philadelphia, Pa.
 Jos. Simonton, Linden Steel Company, Pittsburgh, Pa.
 J. C. Diggs, E. E. Souther & Bro., St. Louis.
 John J. Lane, Brennan Boiler Brace Company, St. Louis.
 E. Grupe, Grupe & Murray, Davenport, Iowa.
 D. W. Pratt, Chas. W. Melcher Machinery Company, St. Louis.
 Geo. L. Barnum, The Bigelow Company, New Haven, Conn.
 Jno. P. Day, Niles Tool Works, Hamilton, Ohio.
 Wm. Ritchie, Hamilton, Ohio.
 A. B. Scully and A. M. Castle, Chicago.
 Arthur Appleton, Wm. Sellers & Co., Philadelphia, Pa.
 C. A. Blake, Park, Bro. & Co., Limited, St. Louis.
 R. B. Lyle, Park, Bro. & Co., Limited, St. Louis.
 Andrew Thomson, Ripley & Bronson, St. Louis.
 Jno. C. Porter, Spang Steel and Iron Company, Limited, Pittsburgh.
 Frank E. Coddling, E. E. Souther & Bro., St. Louis.
 J. P. Nicholas, Britton Rolling Mill Company, Cleveland, Ohio.
 W. P. Tyler, Tyler Tube and Pipe Company, Washington, Pa.
 Maj. Edward A. Magee, Chief Engineer, U. S. N., New York.
 W. H. Wood, Media, Pa.
 Jas. B. Myers, American Tube and Iron Company, St. Louis.
 Geo. N. Riley, National Tube Works Company, Pittsburgh, Pa.
 A. W. Dreves, Carnegie, Phipps & Co., St. Louis.
 E. E. Souther, E. E. Souther & Bro., St. Louis.
 A. G. Richardson, Ewald Iron Company, St. Louis.
 Capt. William McClellan, president American Association of Boiler Inspectors, St. Louis.
 Frank Burnett, Vessel Inspector, Treasury Department, Washington, D. C.
 John Shaffer, Vessel Inspector, Treasury Department, Washington, D. C.
 J. Egoft, Hartford Steam Boiler and Insurance Company, St. Louis.
 Mr. Weber, Fidelity Casualty and Insurance Company, St. Louis.
 E. W. Coit, National Tube Works Company, St. Louis.
 T. J. Halsey, Western Valve Company, Chicago.
 J. E. Chandler, Chandler & Taylor Company, Indianapolis, Ind.
 W. E. Park, Pneumatic Tool Company, New York.

Tuesday's Session.

The convention was called to order shortly after 10 a.m. by President James Lappan. The secretary, E. D. Meier, and the official stenographer, John J. Burke, were present, but the treasurer, Richard Hammond, was unavoidably absent. The first vice-president, Philip Rohan, was also present. The second vice-president, John Mohr, was absent, as he had resigned from the association. The third vice-president, Christopher Cunningham, was absent. The opening exercises began with an address by President Lappan, in which he exhorted the members to attend strictly to duty and to endeavor to build up the

association that it might become a power in the land. Secretary Meier then made a statement of the railroad arrangements and other business matters. He was followed by Richard Garstang, who welcomed the association to St. Louis in behalf of the St. Louis boiler manufacturers and kindred interests. A. T. Douthett responded for the association.

Routine business was next taken up. The minutes of the meeting of 1890 were read by title, after which the treasurer's report was presented, showing receipts of \$940.17 and expenditures of \$567.45, leaving a balance on hand of \$372.72. The secretary reported \$225.96 in his hands to be turned over to the treasurer, which would make the total available cash on hand \$598.68. Seven members were dropped from the list during the past year and nine new members were received. The president appointed Messrs. Douthett, Rohan and Mathews an auditing committee, and O'Brien, Douthett and Kroeschell Committee on Nomination of Officers. Committee reports were then called for. Chairman Douthett of the Committee on Resolutions reported a resolution concerning the death of D. F. Congdon, and suggested that hereafter the members should notify the secretary when they learned of the death of a fellow member. Chairman Meier of the Committee on Statistics stated that the committee had concluded to wait for the United States census report, which would soon be ready, and that they would then have a good beginning, which could be followed up. Chairman Raynal of the Committee on Topical Subjects was absent, and no report was presented. There was also no report on State and local organizations. The discussion of the report on materials and tests which had been presented at the New York meeting was fixed for Wednesday morning. The report on riveting and calking, which had been read at the second Pittsburgh meeting, but not acted upon, was then taken up and Wednesday morning was also fixed for the discussion on it. The discussion of the report on manheads and manholes was arranged for Wednesday afternoon, as also the report on safety valves and horse-power, both of which had been presented at the New York meeting. P. F. Dundon, chairman of the Committee on Uniformity in State Inspection Laws, made a written report, recommending a very elaborate law which it is designed to submit for adoption by Congress.

The form of bill as outlined by the association is summarized as follows, the preamble being an emphatic statement of the necessity of boiler inspection, on the consideration of the risks involved of life and property:

The steel plates used in construction to be of the tensile strength of from 55,000 to 65,000 pounds per sectional square inch, and the tests to be the same as required by the United States Steamboat Inspection law. The plates used to be stamped in four places, viz., about 12 inches from each corner, with makers' name, tensile strength and the letters A. B. M. A., to give necessary authority.

All boilers 5 horse-power and over, used for generating steam, and subjected to a pressure of 15 pounds or more per square inch, to be subject to inspection.

All boilers coming under these provisions to be subject to official inspection at least once a year, and also to hydrostatic pressure, to be 50 per cent. more than the steam pressure allowed.

Steam pressure on new boilers to be determined by the same rules as approved and adopted for marine boilers by the United States rules of supervising inspectors.

Inspection always to precede the test, and every boiler when in use for a period of six years, to be inspected every six months, and tested once a year.

Boilers from other States to be accompanied with the manufacturer's affidavit, and attested by some person legally qualified to administer an oath, and a certificate of the same to be filed with the chief inspector of the State from which the boiler is forwarded.

Tests of material to be made by the chief inspector, in the same manner and under the same rules as for marine boilers.

Every manufacturer in the State to give notice in writing to chief inspector before commencing construction of any boiler.

All persons in charge of boilers to notify the chief inspector, at least every three months, as to the conditions of boiler under his personal charge.

All persons having charge of any boiler of 6 horse-power, or greater, to be examined as to his competency.

Persons owning boiler plants to pay annual license to defray inspection costs; 30 horse-power and under, 15 per cent. per horse-power; over 30 horse-power and under 101 horse-power, 12 per cent. per horse-power. Over 100 horse-power, 10 per cent. per horse-power.

Inspection to take place within 15 days before or after the date of first inspection on the following year.

Inspectors to make inspection so as to cause the least possible inconvenience.

Inspectors to order such repairs as are necessary.

Deputy inspectors to make full monthly reports to the chief.

Boilers built in compliance with these laws, and insured by legitimate insurance companies in the State who employ inspectors, to be exempt from any further official inspection, provided the company files monthly statements to the Chief State Inspector, it being at the option of that official to inspect the same if he chooses.

One chief inspector, to be appointed, and as many deputies as the number of boilers within the limits of the district allow.

In the duties of inspectors and deputies it is assumed that the chief inspects 100 boilers per annum in the city where the main office is located, and to be at his office ready for business every day from 9 a.m. until 4 p.m., excepting on Sundays and legal holidays. Deputy inspectors to assume the inspection of 600 boilers annually, if located in his district, the number to be graduated if inspection duties call him outside his limits.

The qualifications to be a knowledge of boiler construction and at least seven years' experience in boiler making.

The chief inspector to be appointed by a board consisting of five citizens of the State, all of these to be men of practical experience; their appointment to be confirmed by the Governor of the State.

The salary of the chief to be \$2400 per year, and that of deputies \$1800. No official to have interest or ownership in any business connected with his official duties.

This law to go into effect immediately on its passing.

The State inspector to be appointed for a term of four years, but may be removed for cause within that time.

Violations of law by inspectors subject to a penalty of \$250 and removal from office, and in default of payment three months' imprisonment. Engineers failing in duty to have license revoked for a period of from one month to five years, with the opportunity of appealing his case to the examining board.

Steam users and owners of boiler plants, in violation of law, to be held in a penalty of \$500, or in default six months' imprisonment.

Boiler manufacturers guilty of infraction to be fined \$500, or in default to six months' imprisonment.

Mr. Rohan made an earnest speech in advocacy of the adoption of the committee's report. He regarded the passage of such a law as the most important work which the association could accomplish. The Missouri boiler manufacturers had endeavored to secure the adoption of a boiler inspection law by their Legislature, but thus far had not succeeded. They intended, however, to keep on trying and expected to succeed. Thursday morning was fixed as the time for discussing this subject, and the committee was instructed to give the matter further consideration in the meantime. The report on boiler setting made at the New York meeting was laid over for the present. The subject of the A. B. M. A. Insurance Company was next taken up, and the president ruled that hereafter this subject should be considered irrelevant by the association, as the insurance company was now entirely outside of the province of this body. The topic of apprenticeship was next brought up, and it was decided after a brief discussion that the matter should be left to the members to act upon as individuals, inasmuch as action by the association would probably invite a con-

flict with labor organizations. A communication from Mr. Dundon was read, in which the writer took this view of the question and gave cogent reasons for the position he occupied regarding it.

At this juncture President Walbridge of the St. Louis City Council was introduced, and he proceeded in behalf of the Mayor, who was unable to attend, to welcome the boiler manufacturers to the hospitality of St. Louis. In the course of his speech Mr. Walbridge asserted that the old saying that "competition is the life of trade" had given way to a new order of things, and that now a general belief existed that competitive co-operation is the life of business. A communication was next read from J. L. Torrey, urging the convention to take action on the Torrey bankrupt bill. A committee was appointed consisting of Messrs. Gary, Munroe and Foster to report upon this bill, and Mr. Torrey was invited to attend at a future session and explain its provisions. The convention then adjourned.

At 2 o'clock the members were taken in carriages provided by the St. Louis Entertainment Committee for a tour of the city. They were first driven to the mammoth brewery of the Anheuser-Busch Brewing Association and inspected its various departments with much interest, not neglecting to sample the company's product. Each visitor was presented with souvenirs of the occasion. They were thence driven to Tower Grove Park, Shaw's Botanical Garden, Lindell avenue, Forest Park, Vandeventer place and Grand avenue to the Fair Grounds and Zoological Garden. At the last-named place they were photographed in a group and afterward sat down to a generous luncheon. In the evening the entire party were taken to the Olympic Theatre by their St. Louis hosts and witnessed a performance by the Lilliputians.

Wednesday Morning's Session.

The report on material and tests was the first subject scheduled for discussion, but the committee requested that it should be temporarily laid aside. The report on riveting and calking, which was made at Pittsburgh, was then read. Its evident bias in favor of hand riveting called forth a great deal of adverse sentiment among the members. Mr. Rohan said that in his estimation the association was organized to secure progress among boiler manufacturers, and that the adoption of machinery was in that direction. Full information should be obtained with regard to the merits of hand and machine riveting, and the subject should not be dismissed lightly. Investigations should be made and the results of different kinds of machine riveting should be set forth. Mr. Mathews, a member of the committee, agreed with Mr. Rohan, and stated that he was willing to confess that a report made two years since was not what it should be in the light of the progress now being made. Mr. Meier regarded the question of machine or hand riveting as one of shop practice. In some cases either hand or machine work could be employed equally well, while in others machinery alone could be employed. He suggested practical tests on riveting and manheads to be made by the committee, and to be reported to the next convention. Mr. Rohan coincided, believing that any report made should be based on actual tests and should not merely express the opinion of those on the committee. Everything stated should be backed up by undoubted facts. Mr. Ritchie, as chairman of the Committee on Machinery of the World's Fair, suggested that very thorough tests could be made in 1893 at Chicago, where every facility would be afforded. Mr. Munroe favored practical tests, but urged that separate boilers be constructed showing hand riveting entirely and machine riveting entirely,

if the tests were to be made really conclusive. Mr. Meier offered the following resolution:

Resolved, That the committee be authorized to prepare at the cost of this association several short sample boiler shells riveted under the proposed rules, illustrating the best percentages of seam value attainable under the same for various kinds of hand and machine riveting, which are to be tested to rupture by hydrostatic pressure during our next convention, and that the Committee on Manheads, Stays and Bracing be invited to suggest different types of manheads and braces for the heads of these shells, to be tested at the same time; these shells to be made of A. B. M. A. steel, and heads made from the same cast at the mill, and numbered coupons taken from each plate and tested separately.

Mr. Geary thought this would be a waste of time and money. Machine riveting is bound to be the way to rivet hereafter. There is no good shop to-day in which riveting is not done by machinery. There may perhaps be a question as to the use of hydraulic or steam power, but machine work is bound to supplant hand work. Mr. Wilson thought the question of the kind of riveting done was merely one of dollars and cents. Machine work is cheaper than hand work, and boiler manufacturers were like other people in doing whatever would reduce cost. Nevertheless this association might very properly expend some money and time to demonstrate which method of riveting is the best.

Mr. Mathews thought it criminal to make boilers either too cheaply or too quickly.

Mr. Munroe was of the impression that the association would find it more profitable to take up the question of spacing and the size of rivets rather than the mode of riveting, leaving members to rivet by hand or with machines as they deemed best. The resolution of Mr. Meier was then adopted. The committee was increased by the appointment of five more members and they were ordered to make a final report at the next convention. The president named Messrs. Rohan, Geary, Hammond, Meier and Wilson as the additional members.

The Auditing Committee reported that they had examined the accounts of the secretary and treasurer and found them correct.

Mr. Ritchie of Hamilton, Ohio, chairman of the Committee on Machinery of the World's Fair, was then invited to address the convention, which he did at some length, setting forth the progress thus far made, and giving details concerning the size and character of the principal buildings, their probable cost, &c.

The president announced that he was in receipt of a telegram, as follows:

INDIANAPOLIS, IND., May 13.

The National Brotherhood of Boiler Makers, in session here, has adopted a system of apprenticeship. One apprentice is allowed to every four boiler makers.

The reading of this telegram was received with expressions of strong approval from many of the members, after which the convention adjourned.

Wednesday Afternoon's Session.

The first topic brought up at this session was

THE MANUFACTURE OF BOILER TUBES.

William Tyler of Washington, Pa., president of the Tyler Tube Company, was invited to take the floor. He stated that when he began the manufacture of tubes at Washington, Pa., from the raw material he found that tube makers were in some cases using common iron instead of charcoal. He had known instances in which 125 to 150 tubes out of 1000 had

been returned by boiler manufacturers for defects which were caused solely by the poor character of the iron used, although the boiler manufacturers had not suspected that they were getting anything else than charcoal iron tubes. None of these inferior tubes, however, had come from his works. When he started up his rolling mill he tried to get charcoal iron from which to make his tubes, but found only four works making such iron and certain tube mills took all they made. It was impossible for him to buy 1 pound of charcoal iron. His company had then been obliged to build forges and furnaces, and now control their own supply of charcoal iron. At the same time they knew that they had competitors who put common iron into boiler tubes and sold them as solid charcoal. Mr. Tyler exhibited a number of pieces of tubes, some made of common iron and others of charcoal iron. He demonstrated that common iron tubes with annealed ends would work nearly as well at the ends as charcoal iron, but when it came to a fire test the common iron tube proved very defective. Experiments made with both kinds of tubes had shown that charcoal iron tubes would stand 1½ minutes longer in a furnace than common iron tubes, and apparently looked as well as ever when taken out, while the common iron tubes were practically destroyed. At a recent meeting of tube manufacturers the question of the use of common iron was brought up and only three manufacturers cared to discuss it. Mr. Tyler asked whether the boiler manufacturers wanted the tube manufacturers to give them common iron tubes with annealed ends or solid charcoal tubes. The common iron tubes can be sold at 5 to 10 per cent. less than charcoal iron tubes. He believed that in many cases the underselling of boilers by some manufacturers is due to the use of common iron tubes by those making the low contracts.

E. W. Coit, representing the National Tube Works Company, then read the following paper:

That I may not digress and tire your patience, I have prepared a few brief notes which, with your permission, I will now read.

In answer to the invitation, May 4, of your secretary, Col. E. D. Meier, I take great pleasure in accepting the same as local manager for the National Tube Works Company, in St. Louis.

I have always regarded meetings of such bodies as this with the greatest respect, and presuming that you meet for purely scientific purposes, I therefore, do not propose to make this a market place for the sale of the products of the company I represent.

I feel too feeble to come before you as an instructor in a business knowledge of which you certainly must possess; I therefore shall occupy but very little of your valuable time, recognizing as I do that much I might say you already know, and that you must have some important subjects connected with your special business to consider.

The National Tube Works Company do not pretend to advise you what you must use. They stand ready to make what you decide you must have, and in the course of their business the boiler makers have obliged them to make a great many varieties of tubes.

For instance, what is known as the standard charcoal-iron boiler tube of trade? Most of you gentlemen have, no doubt, visited some one or other of the mills manufacturing such tubes and are familiar with the process, which is no secret; therefore a description would be merely time taking.

This tube, if we may judge from the demand, is deemed sufficiently good for all ordinary requirements.

We brand this tube

B

Then the railroad trade demanded a special tube for that service, which induced the company, at great expense, to make what is termed the solid drawn tube. This tube differs from the other in the fact that it is made out of a single piece of iron, one single charcoal bloom being rolled and hammered into the desired solid plate for the size tube required. This is

always made from a very high grade of refined iron, the manufacture of which is absolutely controlled by the National Tube Works Company.

This we brand

Locomotive

Then there was a demand from certain railroad trade for a very stiff tube, and after large expense and experiments extending over years of time the company finally produced what is known as the Franklinite. I will not take up your valuable time detailing the process of manufacture of this brand of tubes, principally because it is a secret known only to the company.

This is branded

Franklinite.

Then certain boiler makers, particularly on the sea and gulf coasts, demanded a very close grained hard tube, to resist the action of salt and brackish water. These we have produced satisfactorily. We have no special name for these tubes, but we are ready to make them to special order at any time. The process of the manufacture of these tubes is likewise secret to us, the boiler maker being the only judge as to whether they are suited for the purpose for which they are made or not.

In certain sections of the country where alkali water is encountered a tube to resist its action is required. I was told on one occasion by Mr. Gregg, Master Mechanic of the Southern Pacific, located at Los Angeles, that frequently a set of tubes would be eaten out on a trip of, say, 300 miles. How to protect a tube under such conditions was the study of the company for years, and they caused their experts to visit foreign countries on the slightest intimation that such a process existed, that they could profitably employ for the benefit of this trade. They finally purchased in Europe, at an enormous cost, the exclusive right of what is known as Kalamein. It is a non-corrosive metal alloy, composed of zinc and other metals.

After the tube is made this kalamein is heated to a very high temperature and the tube is then immersed in it and allowed to remain there until it assumes the same temperature. The pores of the iron are opened up under this high heat and absorb the alloy, which becomes a part of the body of the tube. This alloy is non-corrosive by alkalies, salt or any other water that has been encountered in the use of steam boilers, and kalamein tubes have given entire satisfaction wherever they have been introduced, in localities suffering from alkali or other bad water. I would just state here that this treatment can be used on iron only, as steel will not accept the condition.

This we brand

K

There has been some demand for steel tubes. These the company have made and are ready to make of all grades, whether Bessemer, open-hearth, Clapp-Griffith or any other steel from which a tube can be made to suit the customer.

We also make a special tube for marine use for the United States Government, but at times our works are so busy with other trade and time orders that we cannot entertain this special government business, and unfortunately cannot truthfully say that we absolutely control this trade.

The company have also made and are prepared to make tubes according to the requirements of the inland steamboat navigation laws, with which you are so familiar as to make it unnecessary for me to make any further remarks.

From this you can see that the company are prepared now to make all grades of tubes that they have ever been called upon to make by the boiler makers, and they are ready to go still further, and will endeavor always to meet any new demand that may be made upon them.

I think, gentlemen, that I have said enough to show you that the company stands ready to make anything that this association in their wisdom may adopt. As I have stated, the company have spent thousands of dollars and a great amount of time to produce what you have hitherto called upon them to make, and they are ready to go still further in the direction of meeting your demands.

I thank you for this opportunity, though most unexpected, of appearing before you, and the samples that I have the pleasure to present you herewith are pieces of tubes and material which I have brought here to illustrate my remarks, and I beg to apologize for their

crude condition, being only coupons cut from stock of tubes ready for shipment at mill on Saturday last.

Mr. Coit showed a number of samples of the company's tubes, which were examined with interest by the members.

Mr. Tyler was asked by Mr. Connelly if he would guarantee his charcoal tubes against failure in being taken in or out, but Mr. Tyler replied that he would not, as boiler makers were not all boiler makers, and when they tried to make a 3-inch tube fit a 3½-inch hole no manufacturer of tubes would be willing to give a guarantee.

Mr. Rohan said that although he was an old boiler maker it was news to him that charcoal tubes were not always made from charcoal iron.

Mr. Geary asked whether it would not be better to use steel tubes than iron ones, but the question was not answered.

Mr. Tyler promised to bring up the subject of a guarantee at the next meeting of the Tube Association. Mr. Meier hoped that the guarantee would be made only to the members of the A. B. M. A. Mr. Rohan moved that the subject of tubes be referred to the Committee on Materials and Tests, as there should be a standard for tubes as well as shells of boilers.

Chairman Wangler of the Committee on

MANHEADS AND MANHOLES

then presented the following report:

As this committee has been added as a consulting committee to the Committee on Riveting and Calking, and as that committee intend to make tests, we prefer to wait until those tests have been made, as we might find it necessary to recommend the use of different styles of manheads. We will furnish them with designs and dimensions of different kinds of manheads to attach to the shells they are to build and to be tested with them.

The report of the Committee on Safety Valves and Horse-Power, read at the New York meeting, was next taken up.

Mr. Connelly asked that the convention express an opinion as to how tubes should be figured in calculating the horse-power of a boiler, whether full or only partly full.

The discussion that followed indicated that at present the determination of the horse-power of a boiler is very hazy.

Mr. Campbell said that in Ohio the practice was to take the internal diameter of the tubes and two-thirds of the shell.

Mr. Munroe expressed himself in favor of the Smithsonian standard.

Mr. Foster suggested that boilers should be rated by dimensions and the association should adopt such a schedule as standard.

Mr. Campbell said that as horse-power was very largely a question of fuel it would be difficult to ignore the matter of fuel. On natural gas, for instance, more horse-power can be developed than with soft coal. It would be hard to make a rule to apply to all cases.

Mr. Cliff believed that a formula could be arrived at on information collected from a variety of sources, which, of course, would require time and careful investigation covering several States.

Mr. Geary said that the association should adopt a schedule of horse-power based on the number of square feet of heating surface, but, of course, the difference in fuel would have to be recognized. He had known a boiler to develop 80 horse-power with natural gas which would generate 40 horse-power with difficulty on soft coal. He moved that the report on safety valves be adopted and that the part relating to horse-power be referred back to the committee, which should be increased to five members, and that they be instructed to bring in a schedule of the amount of heating surface for all kinds of boilers per horse-power at the next convention. The motion was carried and the committee as appointed consists of Messrs. Foster, Cliff, Connelly, Geary and Wood.

Colonel Torrey, author of the Torrey bankrupt law, was then introduced, and spoke very entertainingly with regard to the provisions of his measure, elucidating its principal features, after which the convention adjourned.

At 4.30 p.m. an excursion was taken by train of the Merchants' Terminal Railway Company to the new industrial city of Madison, Ill., via the new bridge over the Mississippi River. At Madison the party visited the great plant of the Madison Car Company, now in process of erection. On the return trip the train stopped on the bridge to give the visitors an opportunity to inspect this magnificent piece of engineering.

Thursday's Session.

The following paper, by F. E. Leonard, of Toronto, Canada, was read by the secretary:

DRIFT PINS.

I wish to say a word or two about this much-abused tool. It has always struck me as most absurd for specifications to discard this very useful tool; almost every inspector has a dig at it, and why it should be singled out for complete condemnation when other tools used in the construction of steam boilers, which can be equally as carelessly used, are not mentioned seems out of place to me. I contend that it is no more injurious than the calking tool in the hands of a careful workman. In fact, I have found it an absolute necessity to use it, particularly when sheets come from the mill buckled, necessitating the laying out of holes over an uneven surface (for every shop in this country has not a set of straightening rolls), resulting in one course being larger or smaller than its neighbor. This state of things also occurs when one plate is slightly thicker than another. How a boiler maker is to get over the difficulty without the use of a drift pin I do not know, and why it makes any practical difference to the strength of the boiler (the holes afterward being reamed out) I do not know. If we discard drift pins in our shops there is no other course left but to have all rivet holes drilled after the courses are rolled and put together. I do not see why this very useful tool should be so much condemned. It is very unfair, for it is of great use and convenience to the maker and lessens the cost to the purchaser and in no way interferes with the strength of the boiler when handled by a careful workman. I think inspectors have overlooked (in this age of steel) the double tensile strength of the material we now use and put a condemnatory clause in the specifications more from habit than anything else. Boiler manufacturers who have a reputation to lose will see that all their boilers are carefully constructed and that no workman carelessly uses chisels, expanders or drift pins without being bound to discard this latter very useful and convenient tool.

Chairman Rohan, of the Special Committee on Uniformity in State Inspection Laws, then submitted the following report:

STATE INSPECTION LAWS.

Your committee to whom has been referred the report of Mr. Dundon, chairman of Committee on State Inspection Laws, respectfully report as follows: We have studied the matter as presented us by the former committee, and have come to the conclusion that in order to properly draft a universal law that would be suitable to the A. B. M. A., and at the same time contain such provisions as would insure its passage in the various legislatures of the country, would require a great deal more time than the committee could give it and at the same time report to this convention. We suggest this committee be empowered to act in conjunction with the Executive Committee of the A. B. M. A. and get such legal advice that may be necessary, and to petition our different members of Congress to pass, if possible, a law similar to the Interstate Commerce law, that will regulate the making and inspection of all boilers manufactured in the United States, and any boilers of foreign make that may be imported to this country.

We request that the report of Mr. Dundon be placed on our records, as it contains many very valuable suggestions, and that the committee be allowed to revise and amend and make a complete report on same at our next annual meeting.

We append our own report as below. We have made it in the shape of a bill to be introduced into the State legislatures of the various States:

For an act to provide for the classification of steam boilers, and to prescribe a penalty for

the violation thereof. Be it enacted by the Legislature of the State of Minnesota:

Section 1. That for all purposes of manufacture, sale, use and inspection of steam boilers within this State, the following designations shall be applied and observed—that is to say, all boilers properly constructed and braced, made of A. B. M. A. brand, shall be classed as No. 1.

All boilers properly constructed and braced, made of best flange iron or best flange steel, shall be classed as No. 2.

All boilers properly constructed and braced, and made of shell iron or shell steel, shall be classed as No. 3.

All boilers properly constructed and braced, made of cast iron or tank iron or tank steel, shall be classed as No. 4.

4. And every boiler manufactured or sold after the taking effect of this act shall be visibly stamped on its outside sheets or surface, designating the kind and quality of material used in its construction. Whenever a contest shall arise as to what constitutes a No. 1 boiler, as to the material, the standard adopted by the United States marine law shall govern.

Sec. 2. That any person who shall manufacture or sell any boiler not stamped according to the provisions of Section 1 of this act, or who shall manufacture or sell any boiler belonging to any of the classes specified in Section 1 of this act, shall stamp or in any other manner represent the same as belonging to any other of said classes, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined not less than \$50, nor more than \$200, and by imprisonment not less than ten days nor more than three months.

Sec. 3. It is hereby made the duty of boiler inspectors appointed under the act approved April 24, 1889, in addition to their other duties, to prosecute all offenders for violation of the provisions of this act.

Sec. 4. All acts and parts of acts inconsistent with this act are hereby repealed.

Sec. 5. This act shall take effect and be in force 90 days after its passage.

PHIL. ROHAN,
J. M. WILSON,
T. KENNY.

The recommendation of the committee to divide boilers into classes excited a lively discussion, participated in by President Lappan, Secretary Meier and Messrs. Wood, Garstang, Rees, Douthett, Mathews, Kenny, Munroe and Wilson. It was contended by some that the association in recommending inspection by classes was recognizing the manufacture of boilers of inferior materials, but this was denied by others, who insisted that the association was obliged to take things as they are and not as it would like them to be. Other types of boilers than the association's standard were in wide use and had been for many years, and it would be impossible to have inspection laws passed which would condemn them. The official inspectors present were called upon to give their views. Addresses were made by Messrs. McClellan, Burnett and Shaffer, but they confined themselves to a general view of the subject and did not take up details. In fact, Mr. McClellan, the president of the Association of Boiler Inspectors of the United States and Canada, said that the question of grading boilers had never come up for discussion in framing inspection laws.

The report of the committee was finally accepted and approved, with the following proviso, suggested by Mr. Douthett:

That we as an association can and do recommend only such boilers as will pass under the proposed law as No. 1; but that as the very organization of our association proves that inferior boilers have been and are built, we believe that such classification is necessary in order to show the public that there are different grades of boilers built, and thus make it possible for every intelligent steam user to discriminate between good and poor work.

A motion made by Mr. Rees was then adopted to the effect that the Committee on Inspection Laws and the secretary should meet with the Association of Inspectors in September and confer with them as to the best form of a law to be passed on this subject.

The next matter taken up was the selection of a place for the next convention. Buffalo was the unanimous choice, and the time fixed was the second Tuesday in June, 1892.

The election of officers followed. The candidates nominated for the presidency were James Lappan of Pittsburgh, Richard Hammond of Buffalo, and Richard Garstang of St. Louis. Mr. Lappan was elected and will thus serve a third term as presiding officer. For first vice-president, Philip Rohan of St. Louis, had no opposition. For second vice-president two candidates were named, James Kenny of St. Paul, and Edward Kendall of Cambridgeport, Mass. Mr. Kenny was elected. For third vice-president, Charles Kroeshell of Chicago had no opposition. E. D. Meier of St. Louis, was re-elected secretary and Richard Hammond of Buffalo treasurer without a contest.

The Committee on the Torrey Bankrupt bill presented a report recommending its indorsement by the association, and resolutions were passed to that effect unanimously, while the officers were instructed to co-operate with other bodies of business men in securing its adoption by Congress.

At 2 p.m. the convention adjourned to take an excursion on the Mississippi River in the steamboat Oliver Beirne. While the boat moved down the river to the extreme southern limits of the city the members enjoyed themselves promenading the decks to the music of an excellent band. On the return up the river they were invited into the grand saloon and partook of a very fine banquet. President Lappan was presented with a costly gold-headed cane as a mark of esteem from the members.

After the banquet a short session of the association was held on the boat, when the questions of gauges of plates, scarfing iron hot or cold and other practical topics were discussed briefly and were then laid over to the next convention. Suitable resolutions of thanks to their St. Louis hosts were then passed and the sessions were closed.

The Valley Shut Down.

In view of the fact that the long strike in the Connellsville coke region is liable to be terminated at almost any time, it is of considerable interest to the trade to know what action will be taken by the furnace operators in the Mahoning and Shenango valleys, as regards starting up their furnaces, which have been idle since January last. With the object of getting the views of the pig iron manufacturers in the above-named localities on this question, *The Iron Age* recently sent inquiries to a number of the largest operators, and from replies received there seems to be considerable difference of opinion as to what action will be taken by the furnace operators, looking to the starting up of their furnaces when they are assured of continued supply of coke. In answer to our inquiry addressed to the Ohio Iron and Steel Company, proprietors of the Mary furnace, at Lowellville, Ohio, Robert Bentley, secretary and general manager of that company, replied as follows: "There have as yet been no meetings of the furnace operators in the Mahoning and Shenango valleys relative to the matter of starting up their furnaces. It is probable that when the coke strike is over and regular shipments are resumed that a meeting will be called to consider the matter. The railroad companies have not as yet definitely stated what reduction they will make on the rate of coke, but we believe that they have indicated that some reduction will be granted. Also, it is a matter of uncertainty yet what the price of coke will be. Should the price of coke be satisfactory, and some reduction in the freight rate be granted, it is very probable that the furnaces would resume operations shortly after these reductions are known.

The agreement to shut down has been faithfully carried out with one exception, and it has been a great benefit to all concerned. The enormous stocks of pig iron held in the Mahoning and Shenango valleys on January 1 are now substantially cleaned up. What the future condition of the iron trade will be is very difficult to prophesy. There is no question at all but that the valleys must get onto a much lower plane of cost in order to sell their product against Southern competition, and it is my belief that there will be a fair demand for pig iron, at least during the latter half of the year, although high prices are not looked for."

Andrews & Hitchcock, proprietors of Hubbard furnaces, at Youngstown, Ohio, replied as follows: "We intend to start our furnaces as soon as we can get coke and the freight on it at reasonable prices. We are having a good many inquiries for our iron, but we believe the price will be low, and we wish to be prepared to make our pig iron at low cost."

Raney & Berger Iron Company, who have two stacks at New Castle, Pa., replied as follows: "We have continued to run our furnaces all the time during the coke strike, and hope to be able to run right along. We are sold up for some time to come and have no fear of a decline in prices if all the furnaces should resume. New Castle does not belong to the Mahoning and Shenango Valley Pig Iron Manufacturers' Association, and we do not know what this association will do."

Hall & Co., proprietors of Sharon furnaces, at Sharon, Pa., give their views in the matter as follows: "As there has been no recent meeting of the association of furnace operators of the Mahoning and Shenango valleys, we are not advised of its probable action. In our own case, the uncertainty attending the fuel supply, and the future of pig iron prevents a definite answer as to whether we will resume blast when the coke strike is settled."

P. L. Kimberley & Co., proprietors of Keel Ridge Furnace, at Sharon, Pa., replied as follows: "It is not our intention to resume at present. We do not know what other people are going to do."

Stewart Iron Company, Limited, proprietors of Stewart Furnaces, at Sharon, Pa., give their views as follows: "We are not members of the Mahoning and Shenango Valley Pig Iron Manufacturers' Association; in consequence, cannot say what they may do when coke can be secured. The Girard Furnace Company of Girard, Ohio, and Sharon Iron Company, Limited, of Sharon, Pa., have their furnaces in operation. Both of these concerns belonged to the above-named association. When our coke workers see fit to go to work at reasonable wages, such as will give us coke at a price that will enable us to meet the low price of iron, we will consider the advisability of putting our furnaces in operation."

The coke strike has not interfered with operation at the blast furnace of Etna Iron Works, Limited, at New Castle, Pa. It has been in constant operation for sometime, and will continue active unless they are unable to secure a supply of coke.

One of the largest pig-iron manufacturers in the Mahoning Valley gives his views of the situation and the probable future action of the furnace operators in starting up their plants, as follows: "We do not know what action the other furnace owners in the Mahoning and Shenango valleys may take. As to our starting our furnace it depends entirely upon whether we can get coke laid down at our works that will enable us to make pig metal cheaper than we can buy it. As soon as we can ascertain what coke will cost us delivered here, we will be able to give a more definite answer as to when we will resume blast."

Another large pig-iron manufacturer, and one of the best posted men in the Mahoning or Shenango valleys writes us as follows: "Just what action the furnace operators of the Mahoning and Shenango valleys will take will be decided upon at a meeting to be held as soon as a full supply of coke can be had at a fair price and after our troubles with the railroads are adjusted. I would not be surprised if the furnaces would all be running by June 1."

From the information contained in the above correspondence we are inclined to believe that as soon as the coke strike is settled and a price for coke established the idle furnaces in the Mahoning and Shenango valleys will resume blast. The recent advances in the price of Bessemer pig will act as an incentive to the starting up of the idle furnaces, and there is no doubt whatever but that a fair margin of profit can be made by the pig-iron manufacturers in the above places, by marketing their product at the prices now running for Bessemer and other grades of pig iron. While the concessions made by the coke operators and the railroads have not been as great as were asked for, and to some extent expected by the pig-iron manufacturers, it is believed that they have been sufficient to warrant the furnace owners to blow in their furnaces, as stated above. This action has not yet been formally agreed upon, but at a meeting of the Mahoning and Shenango Valleys Pig Iron Manufacturers' Association, which will be held in the very near future, it is believed that an agreement will be reached which will allow the idle furnaces to resume blast as soon as they can conveniently do so.

The failure of a contemplated grand switchmen's strike on the Northwestern Railroad system signally illustrates the lack of harmony among a certain class of so-called labor organizations which at one time were supposed to be able to "tie up" the various lines of traffic in almost any direction. In the case noted trouble was precipitated by the dismissal for insubordination of a man whom the switchmen demanded should be retained. The officers of the road claim that they had tried conciliation and concession until requests had become demands, and business was in perpetual turmoil. But the would-be strikers in the present instance encountered an unexpected obstacle in the resistance of the Railway Employees' Federation, who took ground in defense of the rights of the company. The switchmen appealed to the Supreme Council of the Federated Railway Employees with no success, and Grand Master Sweeney, who figured in the troubles growing out of the New York Central Railroad strike, declares that the switchmen are "victims of a diabolical conspiracy." Mr. Sweeney promises to "pay them back" later.

The troubles of the coke rioters are not yet over. Twelve of the coke workers who on April 2 last raided the Morewood works in Westmoreland County, Pa., were found guilty of rioting. Six others were acquitted. Captain Loar and eight deputies charged with murdering the seven strikers who were killed in this riot will next be tried.

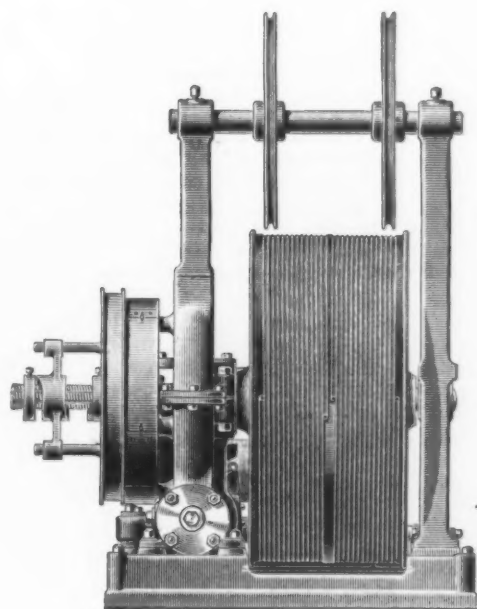
A bulletin from the Census Office upon the subject of the production of manganese in the United States shows the production of manganese of the entire United States to be 23,927 long tons, with a total value of \$238,939. The product has decreased from 30,193 tons in 1886, 34,524 in 1887, 20,198 in 1888 to 23,927 in 1889.

Electric Elevator.

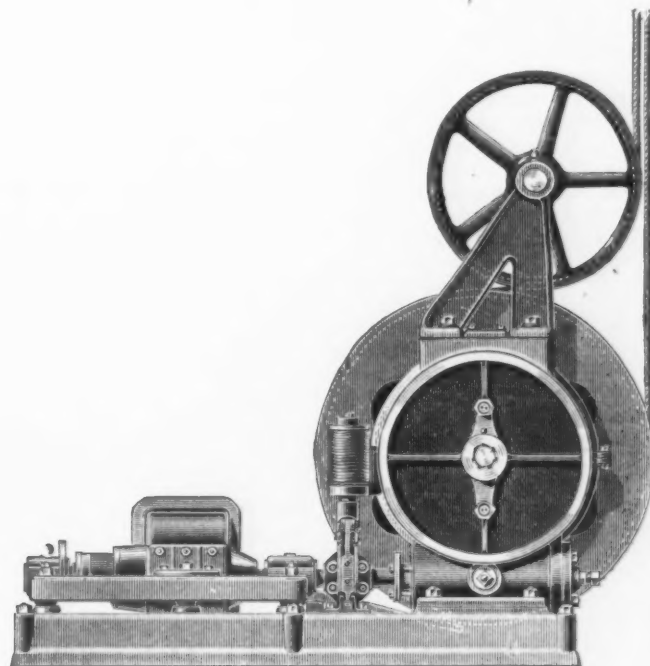
In former issues we have dwelt upon the advantages possessed by the electric elevator—its simplicity, reliability and the fact that it consumes power, and is therefore costly, only when running—and it is not necessary now to retrace the ground. The electric elevator of which engravings are here presented is made by the American Electric Elevator Company of 15 Cortlandt street, New York.

cause the current should be cut off. The worm actuates the worm gear which is attached to the drum shaft. On the drum shaft, but not attached to it, is the wheel to which is attached the operating rope, the movement of which starts, reverses or stops the car at the will of the operator. The end of the drum shaft has a screw thread cut on it, and on it travels back and forth a nut which has wings, and which, when it meets with any obstruction, turns with the drum shaft, and

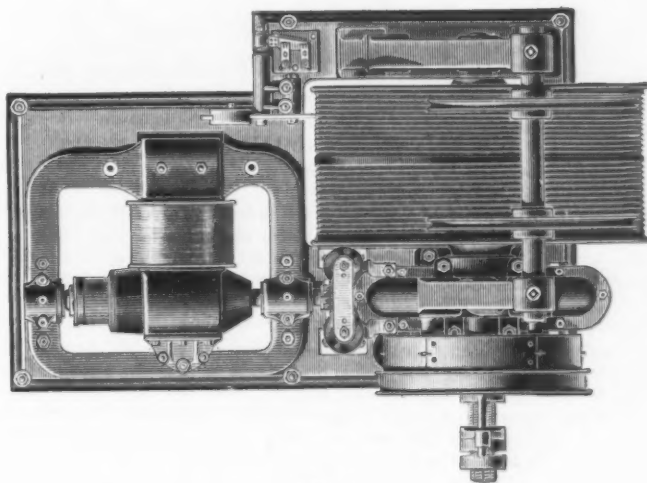
and the counterweight is suspended from the opposite side of the drum, running up and down the shaft, the cables being guided on to the drum, into the grooves vacated by the hoisting cables as the cage descends, or vacating the grooves, which are immediately occupied by the hoisting cables when the cage is ascending. The lift is always in the direction of a vertical line running up the center of the shaft, and there is never any tendency to make the cage bind on either side, as the cables



Front View.



Side View.



Plan.

ELECTRIC ELEVATOR, BUILT BY THE AMERICAN ELECTRIC ELEVATOR COMPANY.

This machine consists of the motor, worm gear, drum, reversing switch and rheostat combined, automatic electric brake and automatic stop device for stopping the elevator at the top or bottom of the lift, thus making it impossible for the elevator car to travel too far in either direction. The armature shaft of the motor is coupled direct to the worm shaft, and this coupling is also a brake wheel, to which the brake is applied automatically when the current is cut off, and thus not only serves the purpose of overcoming the momentum of the armature when stopping, but also serves to hold the car stationary, if through accident at the generating station or from any other

is so attached to the operating wheel by means of the wings that it turns the wheel just enough to stop the motor; the necessary obstructions to the travel of the nut are in the form of collars, which are fastened to the shaft at just the right place to stop the machine at the top and the bottom of the lift. The whole is assembled on one bed plate. The worm runs in an oil cylinder, so that both worm and gear are kept constantly lubricated and require no attention.

The method of grooving the drum permits, when the machine is placed at the top of the elevator shaft, of the hoisting of the cage directly from the drum without the use of any guide sheaves whatever,

travel from side to side on the drum. Perhaps the most noteworthy feature of the machine is the controller and rheostat. The controller is so made that there is never any spark on the sliding contact plates of the switch, for the reason that when the circuit is broken to stop the motor the spark is taken by carbon points. These carbon points carry the current during the instant of time that the sliding contact plates are parting, and flying apart the instant these plates have parted a safe distance, thus the spark which must always occur in breaking any circuit is taken by these carbon points, while if the spark was taken by the metal switch plates it would make the plates rougher and rougher each time the spark occurred, until the contact between the plates would be so imperfect that the spark, originally very insignificant, would become very objectionable, but as the spark in this controller only occurs between two pieces of carbon, the result is that these carbons slowly burn away, but the spark never increases, and it is so insignificant at all times as not to be noticeable. The carbons can be readily replaced and the cost is insignificant.

The rheostat is so made as to radiate heat very rapidly, and will never get unduly heated even when the elevator is running continuously at a slow speed.

The automatic electro-magnetic brake operates so as to apply the brake whenever the circuit is broken and to release the brake the instant the circuit is closed. In this way when the circuit is closed for the purpose of starting the motor the brake is off and the machine free to run, but should the circuit be broken either purposely to stop the motor or through any accident to the wire or the generator, the brake is applied instantly and the elevator held stationary.

These machines are also supplied with a slack cable stop, the operation of which is to break the circuit, thus stopping the motor and applying the brake the instant that the cables become slack on the drum for any reason.

The motors are shunt wound, reversing, self-regulating motors of the Thomson-Houston make, and use current only in proportion to the load to be lifted, and as the motor is always stopped when the elevator is stopped and runs only while the elevator is in motion, the greatest possible economy of power is attained.

The Vessels Under Construction.

There are at present under construction at private shipyards 16 vessels, including three tugs, for the navy, and at navy yards three more, making 19 ships in various stages of building. This does not include the Concord, Bennington and Monterey, the former two fitting for sea at New York and the latter recently launched at San Francisco. The New York, for which the Cramps are to receive \$2,985,000, will be launched in about three months. She is more than half completed, although after she gets into the water there will remain a good deal to do on her, just as there has been on the Maine. The reports from the Government officers at the Union Iron Works make a good showing for the work on Cruiser No. 6, whose keel has been laid and whose frames are in course of erection. The keel of the coast line battleship Oregon, also building at the Union Works, has not yet been laid. Cruisers 9 and 10, identical in plan and cost, are well advanced at the Columbia Iron Works, and it is expected that they will be launched in about four months. Cruiser No. 11, which Harrison Loring of Boston is under contract to build for \$674,000, is a sister ship of the Columbia people's 9 and 10, and although the contracts were entered into at the same time, the Boston firm has not pushed the work on its vessel as the Baltimore contractors have on theirs. The keel of No. 11 has been laid and the frames are partly in position. The vessel will be launched in about ten months. Loring is also building three steam tugs, of which the Navy stands in great need. These craft are in frames and are being plated, and will be launched in about six months. The Bath, Maine, Iron Works is making satisfactory progress with the two gunboats, which are in frames and being plated and are expected to be ready for launching in six months. The Ammen ram, the contract for which was recently awarded to the Bath Company, has its keel laid, and a good deal of the material is in the shipyard. The Cramps are slightly ahead of the Union Iron Works in the work on the other two battleships, the Indiana and Massachusetts. The keels are being laid and numerous frames bent. The keel of Protected Cruiser No. 12, which the Cramps are also building, has been laid, the frames erected and the plating begun. Of the vessels now being constructed at navy yards, all are well advanced. The Cincinnati, or No. 7, at the New York yard, will be launched in about six months, by which time the Raleigh, or No. 8, is expected to be in the water. The Texas, whose construction has been impeded so much by discussions among the constructors, will be launched in about nine months. All the work in the hands of contractors will be completed within the contract time, so far as one may judge from reports received at the Department.

The Midvale Steel Works of Pennsylvania have succeeded in securing the right to manufacture the Holtzer arm or piercing projectile in this country. By this

acquisition the two services are now in a position to obtain the best projectiles in the world, having both the Holtzer and the Firming processes to select from. With the exception of a smokeless powder this new move puts us abreast of the times in all important ordnance matters.

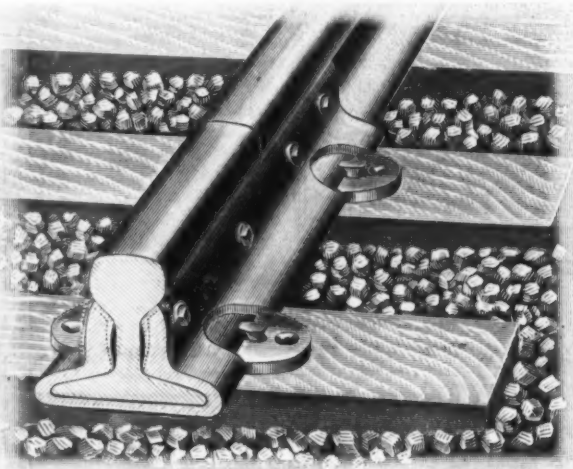
The Coyne Railroad Splice.

John Coyne of Pittsburgh, Pa., with whose inventions of cut-nail machinery the nail trade is familiar, has invented a splice, the main feature of which is that it entirely surrounds the rail, excepting the head, on the under side of which it has bearings, as well as on the under and upper sides of the rail base. It thus affords the requisite vertical support, at the same time securing the rails against longitudinal and lateral movement, as well as furnishing a support to the base of the rail ends, by which vertical deflection is entirely prevented. This practically secures a continuous rail. This splice will overcome the expense and insecurity caused by the loosening of the nuts, which at present is inevitable on account of the forced elongation of the bolts while in

The grip comprises two pairs of disks mounted so as to have their axes turned in an approximately horizontal plane to any desired angle with the axis of the underlying cylinder. When the axes of the disks are parallel with the cylinder axis the car will remain stationary, but when turned to any proper angle therewith the car will be moved. The velocity with which the car is moved depends upon the angle of inclination of the disk axes to the cylinder axis, the speed of the cylinder remaining constant. The speed of the car increases with the angle up to about 60°. With the cylinder in the same direction the car can be run forward, stopped or reversed by the mere change in the inclination of the disk axes, which inclination is under the control of the driver upon the car platform.

Commerce of British Honduras.—

The returns of the foreign commerce of British Honduras for the calendar year of 1889 have just been received and show a very satisfactory condition of trade. Both the imports and exports were greatly in excess of those of 1888. The exports show a very large increase, the total for



THE COYNE RAILROAD SPLICE.

service, as it always presents a great resilient action between the heads of the bolts and the nuts. Mr. Coyne states that it will not cost any more than the inefficient appliances now in use, and that it can be made and applied more easily. That there is necessity for the improvement briefly described above is self-evident to all those having a practical knowledge of railway appliances.

In March, 1891, there were 128 accidents in the United States; 22 were from spreading and broken rails, which to a great extent would have been prevented by a more perfect track, the rails of which should be practically continuous, without interfering with either contraction or expansion, and at the same time should prevent the rails from spreading and from movement.

At a meeting of the Engineers' Club of Philadelphia a paper was presented by George R. Ide, descriptive of the Judson pneumatic system for street railways as constructed and operated at Washington, D. C. This system comprises connected rotating cylinders lying below and between the rails of the track, and in line therewith, which cylinders are operated by compressed-air engines placed at intervals along the line. The cylinders are mounted in bearings in a conduit, and are engaged or clasped by a gripping mechanism suspended from the bottom of the car.

1889 being \$2,155,554, as against \$1,526,115 for the calendar year 1888. Mahogany, logwood and bananas were the principal articles of export. Increase in imports for the year amounted to \$384,279, of which increase \$212,254 is credited to Great Britain and \$91,344 to the United States. The revenue shows an increase of \$50,237 over the previous year, which is due to the increased importation of merchandise. The principal want of the colony is labor.

The Nes Chain Mfg. Company of York, Pa., are conveniently located on which line of the M. C. R., southeast of York, Pa., and cover about 4 acres of ground. The buildings are substantially built and divided as follows: Packing room 75 x 125 feet in dimensions; forge shop 35 x 250, winding room 50 x 75, polishing room 30 x 40, engine room 25 x 30, coal shed 30 x 60, oil shed and office, which are supplied with the latest improved special machinery used in the manufacture of chains; 65 forges are used, and the output of the establishment is about 1500 tons per year, giving employment to 100 skilled mechanics. The output of the works of the Nes Chain Mfg. Company is shipped to every State in the Union; nor is their trade confined to the United States. They enjoy a large trade with Mexico and South America, which is rapidly growing. All kinds of iron chains are made, including

harness chains, wagon chains, special chains for agricultural implements, coil chains, dollied crane chains, cow ties, &c., &c

The Cost of Rail Ingots.

Some weeks since *The Iron Age* published the cost of coal, pig iron, and steel rails for a series of years at one of the leading works in this country. We present below the cost, monthly, from 1884 to 1890, both inclusive, of steel ingots at the same establishment:

1884.			
	Ingots.	Rails.	Difference.
January.....	\$25.37	\$31.86	\$6.49
February.....	24.62	30.10	5.48
March.....	24.20	29.62	5.42
April.....	24.14	28.77	4.63
May.....	24.02	28.02	4.00
June.....	23.83	28.79	4.96
July.....	23.98	29.74	5.76
August.....	24.08	29.31	5.23
September.....	23.27	28.78	5.51
October.....	23.24	28.20	4.96
November.....	22.49	27.20	4.71
December.....	22.74	27.00	4.26

1885.			
	Ingots.	Rails.	Difference.
January.....	\$22.73	\$27.37	4.64
February.....	23.95	28.83	4.88
March.....	22.10	26.98	4.88
April.....	21.74	27.02	5.28
May.....	20.82	28.03	7.21
June.....	21.36	28.13	6.77
July.....	21.01	26.80	4.79
August.....	21.75	26.52	4.77
September.....	22.10	27.45	5.35
October.....	22.34	26.81	4.47
November.....	22.90	26.78	3.88
December.....	22.37	26.11	3.74

1886.			
	Ingots.	Rails.	Difference.
January.....	\$22.81	\$27.32	\$4.51
February.....	22.26	26.16	3.90
March.....	24.26	28.65	4.39
April.....	24.50	29.29	4.79
May.....	24.36	29.30	4.94
June.....	24.27	29.07	4.80
July.....	24.73	29.71	4.98
August.....	24.52	29.82	5.30
September.....	24.66	29.19	4.53
October.....	24.16	28.84	4.68
November.....	25.08	30.59	5.51
December.....	25.09	30.67	4.58

1887.			
	Ingots.	Rails.	Difference.
January.....	\$25.54	\$31.23	\$5.69
February.....	25.07	29.93	4.86
March.....	25.19	29.93	4.74
April.....	25.10	30.12	5.02
May.....	24.76	29.57	4.81
June.....	24.77	29.69	4.92
July.....	24.82	30.93	6.11
August.....	25.86	31.45	5.59
September.....	24.29	29.04	4.75
October.....	25.58	30.60	5.02
November.....	25.30	30.05	4.75
December.....	25.96	30.83	4.87

1888.			
	Ingots.	Rails.	Difference.
January.....	\$27.28	\$35.45	\$8.17
February.....	24.20	30.59	6.39
March.....	25.00	28.74	3.74
April.....	23.60	28.16	4.56
May.....	24.67	29.58	4.91
June.....	24.48	29.85	5.37
July.....	23.45	28.01	4.56
August.....	22.32	26.62	4.32
September.....	22.08	27.14	5.06
October.....	22.22	27.49	5.27
November.....	21.89	26.19	4.30
December.....	22.90	27.41	4.42

1889.			
	Ingots.	Rails.	Difference.
January.....	\$22.39	\$26.96	\$4.57
February.....	21.71	26.33	4.62
March.....	21.53	25.95	4.42
April.....	21.69	26.56	4.87
May.....	21.05	24.87	3.82
June.....	20.74	24.94	4.20
July.....	21.66	26.57	4.91
August.....	21.58	25.77	4.19
September.....	21.26	25.52	4.26
October.....	21.74	26.41	4.67
November.....	22.01	26.22	4.21
December.....	22.22	26.49	4.27

1890.			
	Ingots.	Rails.	Difference.
January.....	\$22.69	\$27.83	\$5.14
February.....	22.83	28.38	5.55
March.....	22.77	27.09	4.32
April.....	23.14	28.56	5.42
May.....	23.31	27.89	4.58
June.....	25.23	30.63	5.40
July.....	24.25	29.44	5.19
August.....	23.81	28.37	4.56
September.....	23.65	29.09	5.44
October.....	23.53	29.25	5.72
November.....	24.22	29.41	5.19
December.....	24.49	31.01	6.52

We have added a third column, which shows the difference between the cost of the ingots and of the rails, and therefore represents the actual cost of rolling. The fluctuations are large from month to month, but a study of the series of figures will convey an opinion on general results which is of much interest. In the absence of data on monthly product no yearly averages can be drawn.

Correspondence.

Sheet Rolling for Tin Plate.

To the Editor: The greatest problem now before the rolling mill engineers in the United States is to provide for the cheap production of the 350,000 tons of tin plate. How is it to be done? Simply by approaching this tremendous business that is waiting all about us in a manner that would indicate appreciation of its vastness. Let the dimensions of the plant have in view a large output, so that the best technical and practical knowledge can be employed and rewarded. There was a time when a man might have a rolling mill in his back yard, but that time is gone by. Many of the Welsh works are on a comparatively small scale, and as a whole they have made but little progress in the production of black plate, each new mill following in the footsteps of the older ones, and enlarging by simply multiplying or duplicating machines, instead of looking to the increasing of the capacity of their machines by improved methods. Improving the method of producing the black plate, increasing and thereby reducing the cost of the production, should be the initial step of the American manufacturer of tin plate. Every saving effected in producing the black plate applies to 95 per cent. of the entire production. Every advance made in the earlier stages of the operation will suggest and compel a corresponding advance in the final operations.

Our rail mills are justly the admiration of the world, the same is true of our rod mills, but of our sheet mills it may be said, as they were in the beginning they are now, and ever will be, unless some one steps out of the rut and places them on the same plane of advancement as our rail and rod mills.

H.

Old Rails in the Valley Mills.

To the Editor: Will you allow us to call your attention to the fact that in the quotations in the Pittsburgh papers, and very often in *The Iron Age*, great injustice, in our opinion, is very often done to the valley mills.

We are continually being represented as selling iron far below the prices at which we have been obliged to sell, and the constant impression is given that these cheap prices are made because the valley mills are the great consumers of old iron rails; while on the other hand Pittsburgh mills are constantly held up as "models," because they no longer use old iron rails in their manufactured iron. For instance, in regard to old iron rails, the *Pittsburgh Commercial Gazette* of to-day says: "Large quantities were formerly consumed here, but within the last year or

two their use in Pittsburgh has been almost abandoned. Sales are still being made here, but chiefly to buyers in the valley districts."

Now, the valley mills have been in the habit of using old iron rails precisely as our competitors in Pittsburgh have been doing for years past. The reason the Pittsburgh mills have not been using old iron rails to any great extent within the last year or two arises from the fact that the price of old iron rails ran up so high that there was no money in using them. This fact applied to the valleys as well as to Pittsburgh; and the consequence is that the use of old iron rails has fallen off here to as great an extent as it has done in Pittsburgh.

Speaking for our own concern, we have not bought any old iron rails since last summer; and, while we do not know, we are of strong opinion that other mills in this vicinity have bought comparatively very few iron rails within the last year. It seems to us that all these charges and insinuations have been published with the one object in view; and that is, to create the impression to the trade generally that bar iron and other material manufactured in the Mahoning and Shenango valleys is inferior in quality to that made in Pittsburgh. That this is untrue can be demonstrated so easily that it is rather surprising that such persistent efforts should be made to build up the reputation of the Pittsburgh make of iron as against that of the valleys.

Yours very truly,
THE MAHONING VALLEY IRON COMPANY,
H. O. BONNELL, President.
Youngstown, Ohio, May 16.

The New Scale.—For some time past rumors have been extensively circulated to the effect that the Amalgamated Association of Iron and Steel Workers, which will shortly hold its annual convention in Pittsburgh, as stated, to advance the base of the scale from \$5.50 for puddling on a 2-cent card to \$6 per ton. We are reliably informed that there is no truth whatever in this rumor. From the best information obtainable it is not believed that there will be any material changes in the new scale, which will be presented to the manufacturers on July 1 for their signature. While it is no doubt true that certain lodges in the above organization have insisted upon an advance of 50 cents per ton for puddling, their demands will not be granted by the association. The organization will convene in Pittsburgh on Tuesday, June 2, and will continue in session until all their business is disposed of. It is not probable that the new scale will be ready for the manufacturers much before the 25th day of next month.

A press dispatch from Louisville, Ky., dated the 14th inst., reads as follows: "In the United States Circuit Court to-day, in the receivership case of J. Kennedy Tod & Co., against the Kentucky Union Railway, Carnegie Bros. & Co., Limited, by H. C. Frick, chairman, filed an intervening petition to secure judgment against the Kentucky Union for \$75,251.28 for rails furnished for the construction of the road in 1889."

The American consul at Cadiz says the amount of trade done in that district with the United States last year exceeds \$3,500,000, including the traffic via England, and expresses confidence that if the two lines of steamers recently established between that port and New York are well sustained trade will continue to increase. At present large orders pass through the hands of European agents, when they should be received from importers direct through a local American firm.

SPARROW'S POINT BLOWING ENGINE.

The new furnace plant of the Pennsylvania Steel Company, at Sparrow's Point, Md., is equipped with blowing engines

which are giving excellent service in a general way. The original design was made by A. Becker, for the engines of No. 3 and 4 furnaces at the Steelton plant, and was modified in some particulars by J. B. Ladd, until recently con-

ducted with the company. Our drawings show the features of the engine clearly. The blowing tubs are 84 inches in diameter, while the steam cylinder is 44 inches in diameter, the stroke being 5 feet. The base is a square box of the form

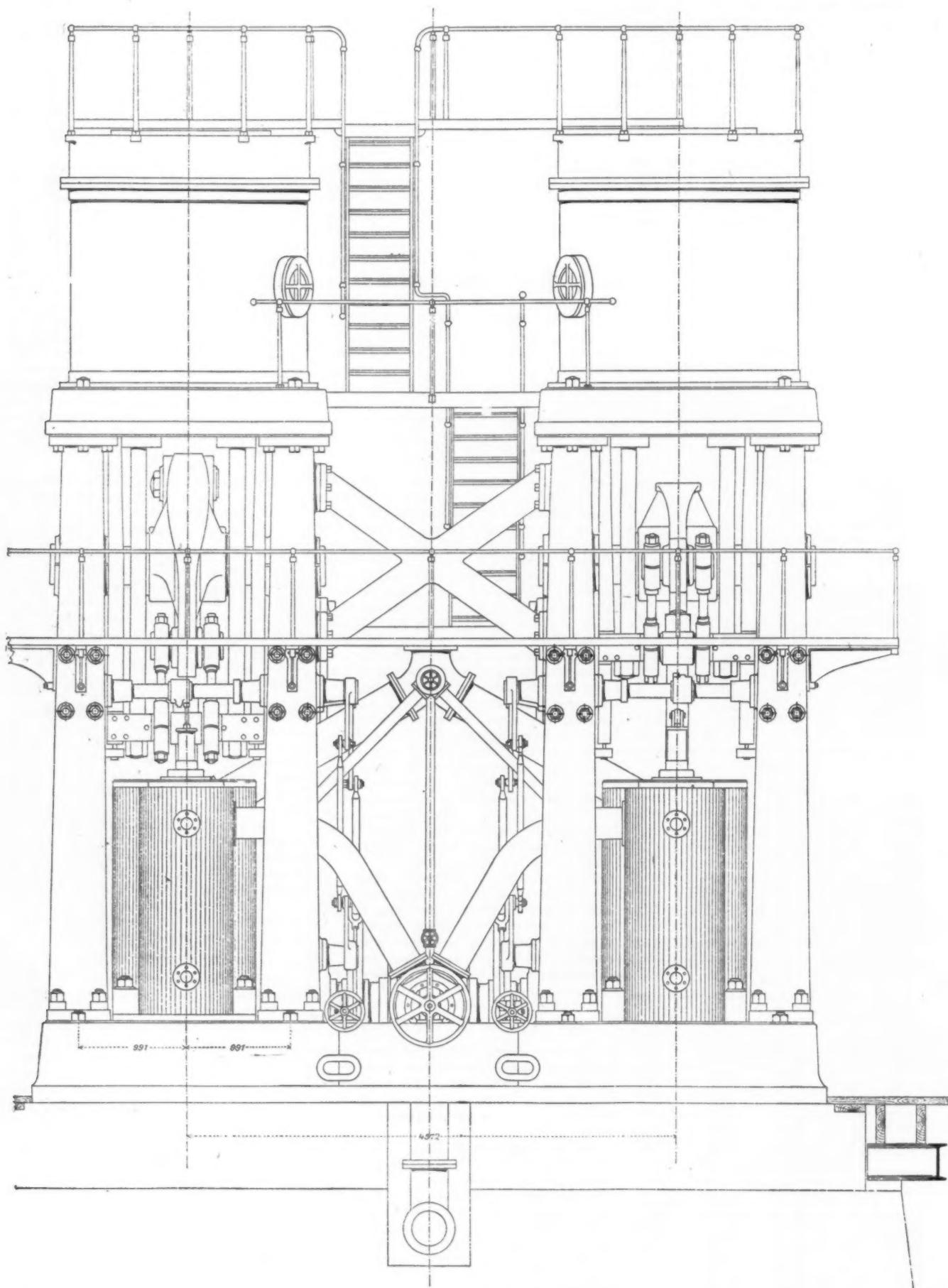


Fig. 1.—Front Elevation.

SPARROW'S POINT BLOWING ENGINES, PENNSYLVANIA STEEL COMPANY.

shown. The two frames are braced together, as shown in Fig. 2. Between the two cylinders is a cast-steel beam, 17½ feet long. The fly wheel is 24 feet in diameter, and weighs 36 tons.

The American Armada.

The American Armada is the term applied to a fleet of three steamships which will be fitted out in Boston by the Three

Americas Company, loaded with products of American industry, and which will leave Boston harbor about July 4, 1891. Many prominent merchants and manufacturers will accompany the expedition. The steamships are named, Valencia, Colorado and San Marco. The first port at which the Armada will stop will be Havana; from the latter city it will proceed to the principal cities along the coast, such as Para, Pernambuco, Bahia, Rio de Janeiro, Rio Grande, Montevideo, Buenos Ayres and Rosario. On the return trip the expedition will visit Laguayra, Cartagena and perhaps Vera Cruz. The party will number between 400 or 500 persons, and the ships will not be in Boston again before the fall. The Three Americas Company propose to establish agencies in all the principal South American towns, so that American producers can always have a sure and facile means of introducing their wares in those markets. The first direct shipment of merchandise from Boston to Brazil will be made shortly by a schooner under charter of the company. The cargo is already made up and other ships will follow at intervals of about a month, which will give opportunity of accommodating all manufacturers wishing

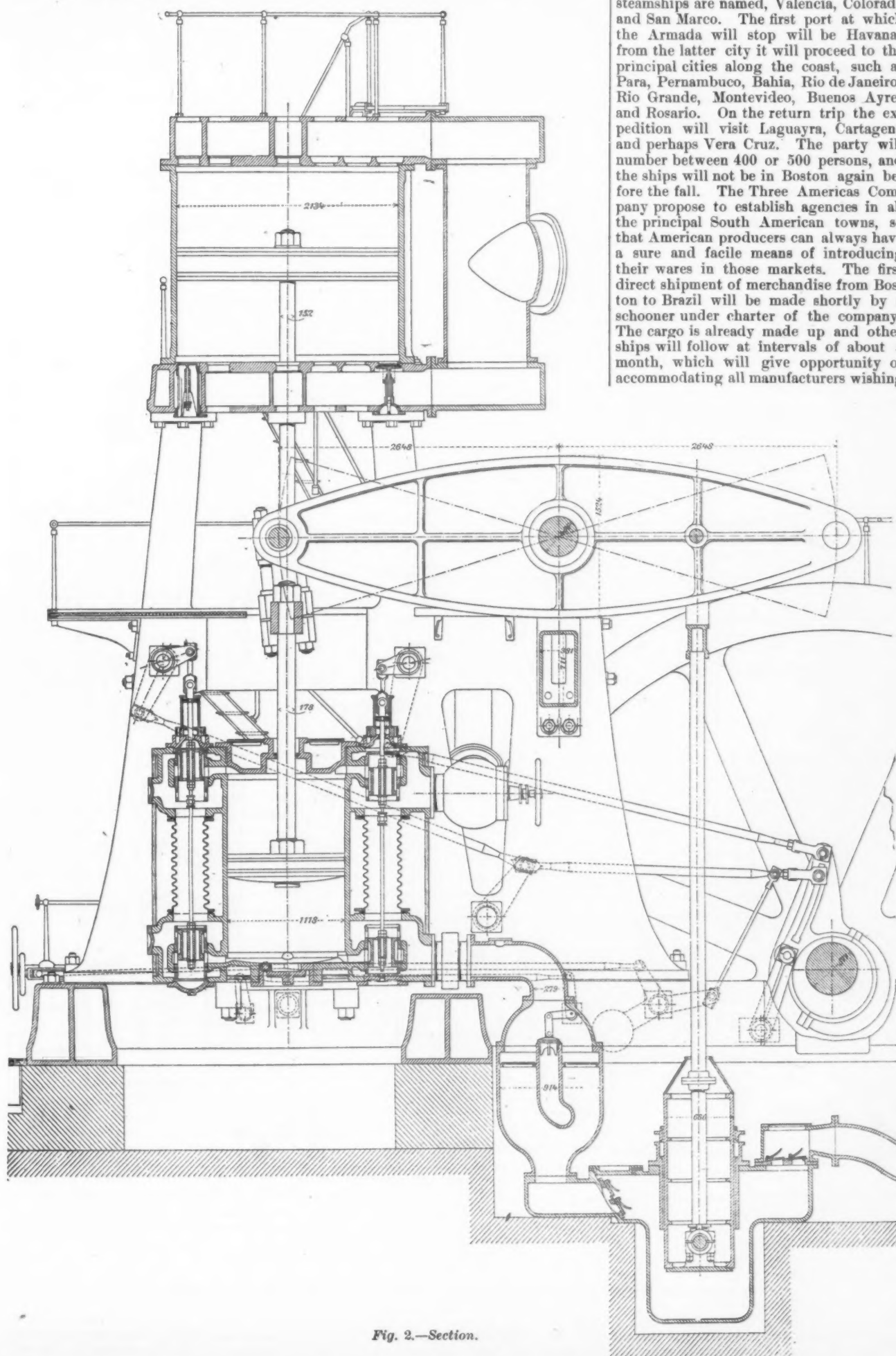


Fig. 2.—Section.

SPARROW'S POINT BLOWING ENGINES, PENNSYLVANIA STEEL COMPANY.

to send goods on consignment or upon order. Charles A. Lamson, special representative of the Three Americas Company, will sail for Brazil on the steamship Finance of the United States and Brazil Line, May 20.

One Hundred and Fifty Miles an Hour.

A speed of 150 miles an hour for mail transportation is declared to be not only attainable, but to have passed the experi-

inches square, set solidly on the earth, with stringers 24 feet long, forms the foundation. The helices are placed equidistant on the horizontal stringers, 6 feet apart, and securely fastened to the superstructure by iron straps, and consist of about 20 pounds of No. 14 wire. Through these coils the two rails of the track extend, one at the top and the other at the bottom. The lower track is in connection with one terminal of the dynamo, and the other terminal has connection with a wire,

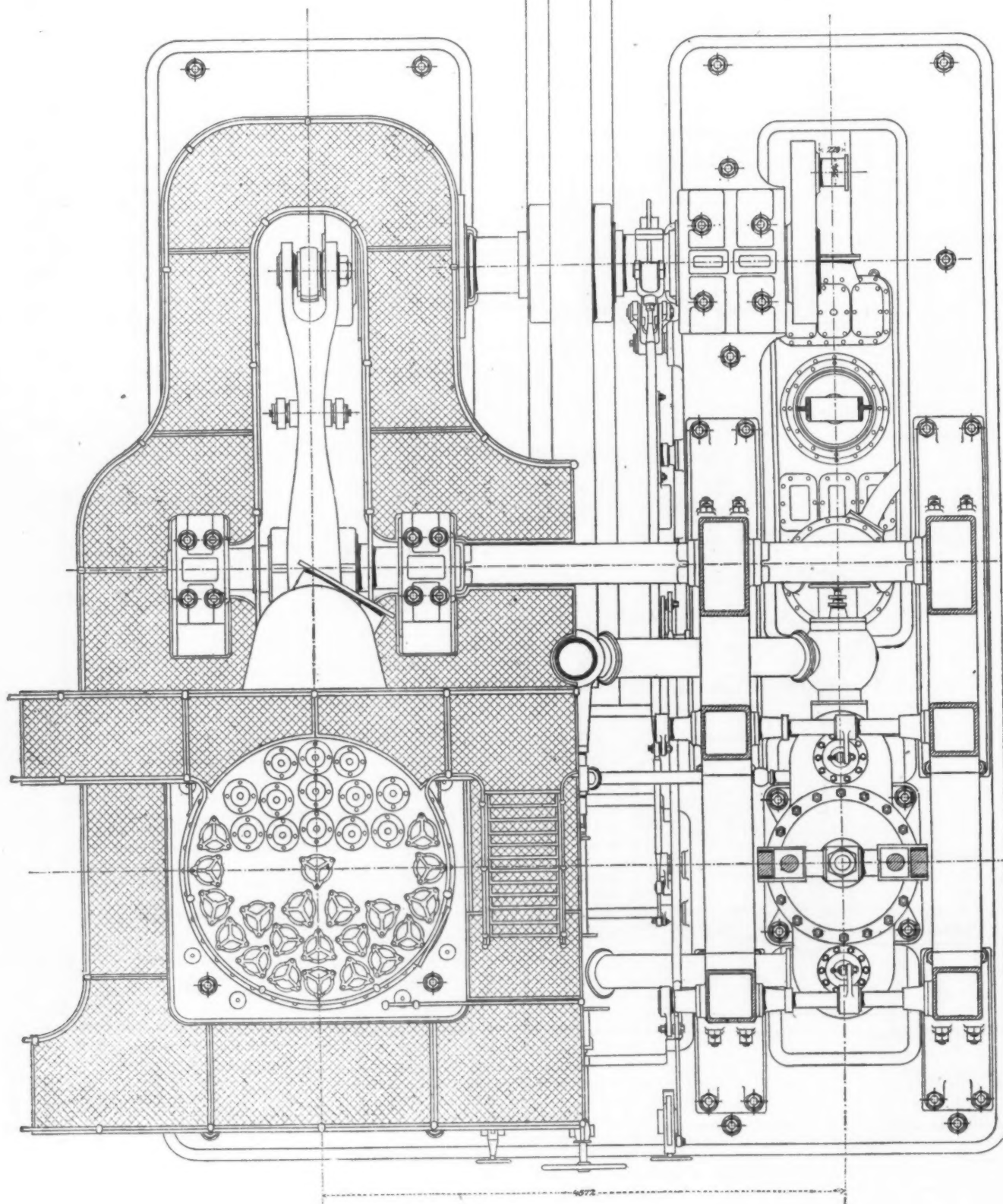


Fig. 3.—Plan.

SPARROW'S POINT BLOWING ENGINES, PENNSYLVANIA STEEL COMPANY.

mental point. What is known as the Portelectric system is in actual operation at Dorchester, near Boston. The track, nearly 3000 feet long, is built pear shaped, including two curves of short radii, some straight and level sections and grades both on a straight track and on curves. A hard-pine trestle structure, with posts 10 to which are attached branches connecting it through the various helices to the sections of the upper track. The suction principle of the invention is demonstrated

by the movement of the car, which completes the circuit between the upper and lower rails through the solenoids in advance of the car. In that way the car is pulled into the coil until it is midway through the coil, when the current is cut out and transferred to the next helix in advance of it.

One of the most interesting features of the system to the ordinary observer is the car itself, a shuttle-shaped carrier, which, when in transit and under full headway, flies like the wind along the experimental line of railway. This shuttle-shaped carrier is virtually a hollow projectile of wrought iron, cylindrical in form, with ogival ends, the cylindrical portion being 8 feet long and 10 inches in diameter, the length 12 feet over all, and the weight approximately 500 pounds. It has capacity to contain, say, 10,000 letters, weighing, perhaps, 175 pounds. It is provided with two flanged wheels above and two underneath, all of which, being fitted with ball bearings, revolve with very slight friction. John T. Williams, the inventor, says plans are being perfected and effort directed toward the construction of a commercial line between two business centers, which

mineral resources by rapid transit for freight and improved machinery. Not only have the shipments of textile and other fibers quadrupled in volume since the opening of the trunk railways, but all kinds of farm produce in the main plateau have become marketable. The mines have largely increased in value, and timber regions in the South which had not been explored have been opened. One of the most beneficial changes is that wrought in the condition of labor, especially in the northern sections. The old system of peonage, or semi-servitude for debts to employers, is disappearing under the rapid process of Americanization now in progress.

Locomotives for Export.—The Rhode Island Locomotive Works of Providence, R. I., recently shipped 12 locomotives from their works, three of them being for export to South America. The number included three 10-wheel locomotives, with 18 x 24 inch cylinders, 54-inch boilers and 54-inch wheels, for the Boston and Maine Railroad. The total weight of the engines loaded is 103,400 pounds, and the weight of the driver 83,000 pounds. The

order at this time 40 compound locomotives, and they have assumed a regular place in their output. The firm is providing by special machinery for the rapid and economical finishing of the compound cylinders.

The Dinkel Steam Trap.

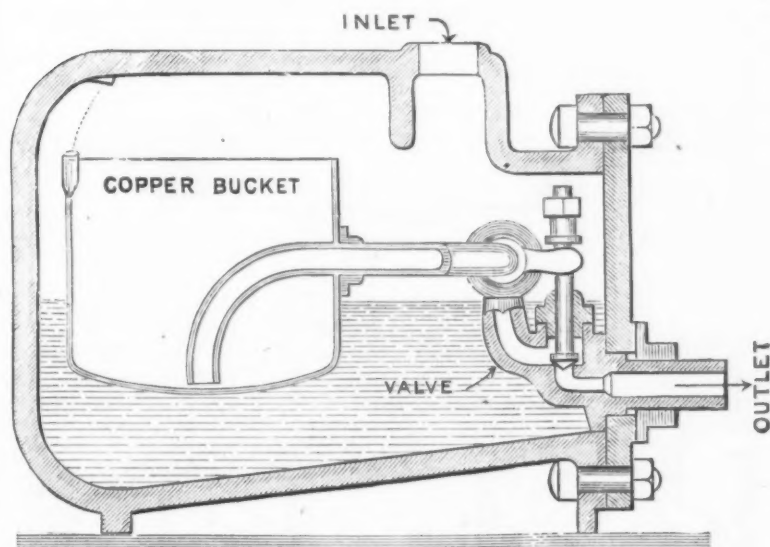
The Dinkel steam trap is especially designed for draining steam coils, steam jackets, vacuum pans and all kinds of evaporators. The particular improvements which are a feature of it are shown in the sectional cut presented; they consist in the employment of an open float bucket, which is not subject to disarrangement, such as sometimes occurs to ball floats when they collapse and fill with water through leakage. The trap valve and connections are placed inside of the trap chamber, and consequently any leakage from these parts will not cause trouble or interfere with the working. The valve is held closed by the pressure in the chamber and opened by an increased power due to the lever attachment. This construction permits the use of a valve with much larger opening than is usually employed in steam traps, and also a smaller float, thereby increasing the working capacity of the trap without increasing the size of the trap chamber. The range of pressure admissible is large without increasing the size of the valve opening. The valve is kept tight by the pressure upon it and the tapping effect caused by the sudden or quick seating after each discharge. All the working parts are inside of the trap chamber, connected to the cover, and can be taken out by removing the latter.

The operation of the trap is as follows: As the chamber fills with water the bucket floats and rises until it strikes against the top of the chamber and can go no further, the water continues to rise until it flows over and fills the bucket, causing it to sink to the bottom of the chamber; the weight of the bucket is such that by this operation the valve is opened, the water in the chamber above the top of the bucket and the water in the bucket is then discharged, the bucket then rises until it floats again and the discharge valve is closed. The valve is so arranged that a body of water is always left above the valve seat after each discharge, consequently steam cannot escape because it cannot be forced through the water. The amount of water delivered at each discharge depends on the size of the trap chamber. The time required for each discharge depends on the pressure in the trap chamber. This trap is made by Nelson & Finkel of 439 East Tenth street, New York.

The second of the new-style screw ferry-boats was launched at Marvel's shipyard, in Newburg, on the 12th inst., for the Hoboken Ferry Company. The hull is of steel and is in every respect similar to the Bergen, which was built in 1888. It is 220 feet over all, 40 feet breadth of beam, 17 feet depth. The boat was named the Bremen. The hull will be taken to New York to have machinery put in. A third boat, to be known as the Hamburg, is in course of construction at the Marvel yards.

The tenth annual convention of the New England Water Works Association will be held at Hartford, Conn., on June 10, 11 and 12. An interesting programme is announced, both of a business and social nature, including an exhibit of water works appliances.

It is reported that a large firm of steel makers in the Pittsburgh district has purchased a large block of Cornwall iron.



THE DINKEL STEAM TRAP.

can be extended in either direction to connect more distant points. And a local paper adds: "No one who witnesses the operation of the Portelectric at Dorchester can fail to be impressed with its evident practicability and commercial adaptability. Now, more than ever, it appears that the prophecy made during the first exhibition of the Portelectric, that it would revolutionize the postal service of the world, is sure of fulfillment. The Portelectric clearly possesses the largest possibilities."

A Mexican letter gives a vivid description of the effects of closer communication between that country and the United States. The construction of the railways and the investment of \$300,000,000 of American capital in Mexican mines, ranches and enterprises of all kinds have created a staple Government in the Mexican republic and opened a new era of industrial development. With the improvement of communications the menace of revolution and insurrection has been removed; the facilities for transporting large bodies of troops to remote States and the network of telegraph wires now in operation throughout the country have established the supremacy of the Federal Government; and value has been imparted both to the agricultural staples and to the

three locomotives exported to South America are moguls with 15 x 20 inch cylinders and 44-inch driving wheels. They have 46-inch wagon-top boilers, and fire boxes 66½ x 21½ inches. Three six-wheeled switching engines for New York, Providence and Boston with 18 x 24 inch cylinders and 51-inch wheels. They have a 2800-gallon sloping-back tank on channel-iron frames. Other orders included a mogul Forney with 17 x 24 inch cylinders for the International Coal Company of Cape Breton, N. S. It has 54-inch driving wheels and a total wheel base of 29 feet. It weighs 117,450 pounds loaded. An eight-wheel engine for the Narragansett Pier road has 17 x 24 inch cylinder, a 52-inch boiler with wagon top and 62-inch wheels.

The Baldwin Locomotive Works have received an order for 20 compound locomotives for export to Brazil. The order comprises six different classes of locomotives, half being for broad gauge lines and half for narrow-gauge lines. There are four 65-ton consolidation freight locomotives, three 50-ton express passenger locomotives and three 50-ton mogul locomotives for the standard-gauge lines, and the same number of engines and the same types for the narrow-gauge lines. The Baldwin Works have built or have under

Gas Valve for Gas Producers.

J. W. Higgs of Sharon, Pa., has designed and patented a valve to be used in connection with gas producers for reversing the gas from one side of the furnace to the other. His object is to secure at all times an accurate and positive seat. It comprises a casing, chambers located respectively at the top and bottom thereof and adapted to receive water, the hollow valve proper, journaled horizontally and having its upper and lower ends adapted to contact with said chambers, and means for effecting circulation of water through the valve, comprising an inlet pipe passing through one of the valve bearings and extending down within the valve to near the bottom thereof, and an outlet pipe passing through the opposite bearing and extending interiorly to near the top of the valve. Thus the valve and the points of contact, where the valve or flopper rests against the casing, are kept cool and will not expand or contract, and consequently will not burn or warp.

One of the Higgs valves has been in use in the Sharon Iron Company's rolling mill for 16 months and has needed no repairing, while with the old kind it was necessary to change every two or three weeks. Two are now in use in the Youngstown Iron and Steel Company's mill in Warren, Ohio; one in the Cleveland Hardware Company's works, Cleveland, Ohio, and one also in the mill of the Cleveland Rolling Mill Company, Cleveland, Ohio.

The Fürst Bismarck.

The new giant twin-screw racer of the Hamburg-American Packet Company arrived at this port from Southampton in the remarkably quick time of 6 days, 14 hours and 15 minutes. This is the best maiden voyage on record, as appears from the following record of the best previous maiden trips:

	Days.	Hours.	Min.
City of New York.....	8	1	9
City of Paris.....	6	23	30
Majestic.....	6	6	30
Teutonic.....	6	21	28
Augusta-Victoria.....	6	21	50
Columbia.....	6	14	15
Normannia.....	6	14	15
Fürst Bismarck.....	6	14	15

In the table 16 hours have been added to records from Queenstown, which is taken to be the difference in time between Queenstown and Southampton. The superiority of double propellers thus appears to be demonstrated. Germany scores a great success in her competition with British shipyards, for the new ship was constructed at Stettin by the Vulcan Company, while her sister ship, the Normannia, which has hardly realized expectations, was built on the Clyde by the Fairfield Ship Building Company. The triple-expansion engines of the Fürst Bismarck developed 16,400 horse-power on this voyage, on a coal consumption, as her officers say, of 262 tons per 24 hours, while the furnaces of the City of Paris, to develop the same power and speed, consume, it is said, from 330 to 335 tons.

A very practical test recently made in Boston of the strength and serviceable qualities of steel car wheels would seem to leave no room for doubt as to their superior value. A 33-inch car wheel of this description was placed on two solid iron blocks, with the rim resting on each block. Under this arrangement a weight of 525 pounds, falling from a height of 17 feet, struck the hub 25 times, without any effect other than battering the metal. It was then dropped 10 times on the rim without a fracture. Next, a weight of 1400 pounds was tried, falling from a height of 17 feet, and striking the wheel 11

times, but failing to break it, thus showing it to be practically indestructible under even extraordinary circumstances. At another series of experiments, in order to determine the expansion and contraction of the metal, a wheel was buried in sand, and a charcoal fire built around the tread until it was brought to red heat; then it was taken out and exposed to the atmosphere, which had no effect on it whatever, thus demonstrating the safety of such wheels.

The new arrow Line steamship Cassord, building at Baltimore, will soon be ready for her trial trip. The Cassord is built on

mitted from every State in the Union, and special and ample provisions will be made to afford to Northern exhibitors every facility for the advantageous display of their goods.

W. H. Wood, A. S. M. E., late with Bement, Miles & Co. of Philadelphia, has established himself as an engineer and contractor at Media, Pa., near Philadelphia. He is now putting hydraulic riveters in the Brooklyn and Charlestown navy yards, with 125 tons pressure on the rivets and 25 tons on the plates; a plant of 75 tons capacity for Tobin & Hamler of Chicago; a 75-ton plant for Sutherland of Troy; a hydraulic

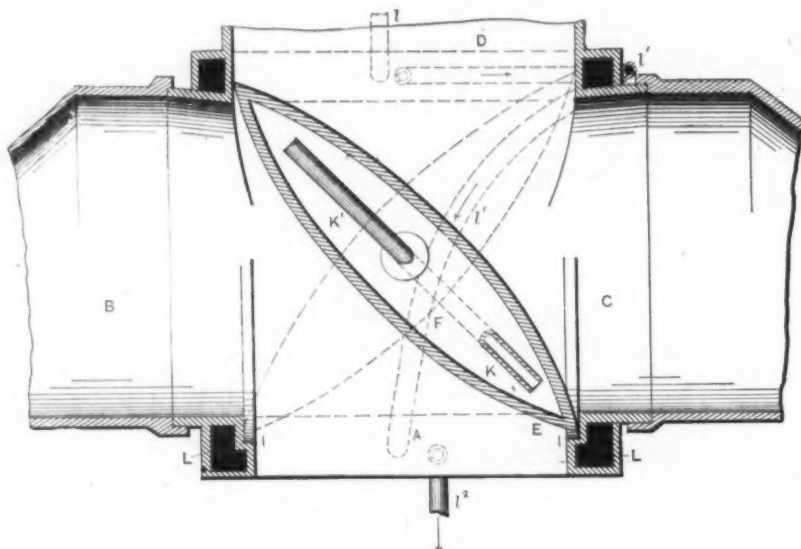
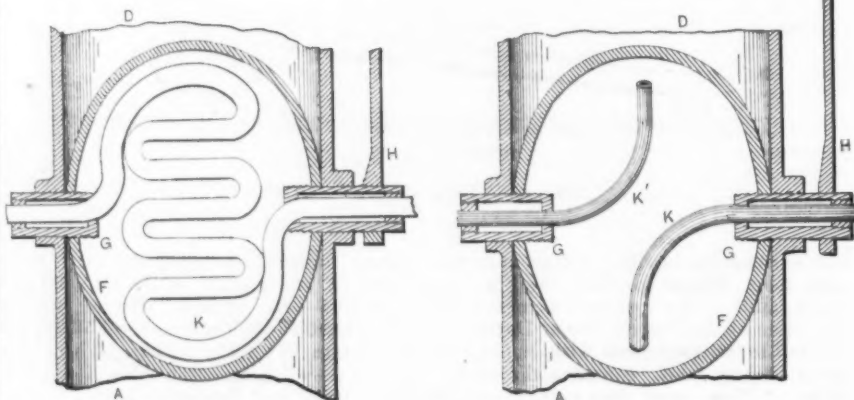


Fig. 1.—Longitudinal Section through Valve.



Figs. 2 and 3.—Vertical Sections through Valve, Showing Method of Cooling.

THE HIGGS GAS VALVE FOR GAS PRODUCERS.

a strange plan, one peculiar feature being that the blades of the propeller are placed at various angles, no two being alike. Inventor Fryer hopes to overcome much loss of power in this way. The vessel is exceedingly long and narrow, but the engines, coal and other heavy materials are kept at the very bottom, thus causing the likelihood of a capsize in a storm very slight.

The Southern Exposition, which will be held at Raleigh, N. C., from October 1 to December 1, this year, will afford to Northern manufacturers in particular an opportunity to bring their products before the notice of Southern dealers and the farmers of that section. Manufactured goods, wares and machinery will be ad-

riveting machine for Farrar & Treft of Buffalo; and several new hydraulic plants for the West, Northwest and Pennsylvania. The Chester Foundry and Machine Company are practically devoting their establishment to Mr. Wood's work, while B. W. Payne & Sons of Elmira, N. Y., are building his hydraulic cranes, &c., but both firms can only build his machinery through Mr. Wood. A number of orders were taken by him at the recent St. Louis Boiler Manufacturers' Convention.

What is believed to be the largest single piece of granite ever started at one blast in Quincy, Mass., has been moved from its original bed in Rogers Quarry. It is 25 feet wide, 20 feet thick and 70 feet long. The company have been five years clearing the front of the stone.

THE WEEK.

The growth of Minneapolis in ten years has been 358 per cent., the greatest increase of any city on this continent. It manufactures more lumber and more flour than any other city in the world. The volume of its jobbing business last year exceeded \$200,000,000. Its bank clearings aggregated \$300,000,000. It has upward of 600 manufactories, and is greatly diversifying its product. In short, Minneapolis is a model American city.

Twenty-two dollars per ton is what Captain Schley of the United States cruiser Baltimore paid for coal at Valparaiso a short time ago, the total cost for filling the ship's bunkers aggregating \$25,000. With this vessel, the San Francisco, Pensacola and the Charleston constantly on the move along the South Pacific coast the cost for this item will amount to a considerable sum.

Barnacles and sea grass, Admiral Gherardi says, are the "curse of steel ships."

The wrecking steamer Yantic, U. S. N., blew up the iron steamer Hargreaves, sunk in deep water, by exploding a torpedo which had been made fast to one of the hoops around the mast and lowered to the deck. There was a terrific upheaval, and the wreck no longer obstructs navigation.

Twelve months ago the agitation which led to the passage of the act of July 14 advanced silver in this country. This has stopped silver exports. Net silver exports during the 12 months ending with March, and the silver advance began in April, for six years past, have been:

1891.....	\$1,066,875	1888.....	\$11,761,132
1890.....	21,347,691	1887.....	8,686,147
1889.....	14,685,758	1886.....	14,908,829

No one can see this sudden fall in silver exports without seeing that the Silver bill has cost the country from \$15,000,000 to \$20,000,000 in its available balance for export. In considering gold exports now, with those in past years, allowance must be made for this.

The manufacture of sugar from beets promises a high development in the United States, and there is a demand among planters for sugar machinery suited to this purpose so inexpensive in its character that agriculturists may secure for themselves the needed apparatus at a moderate cost. Here is a chance for inventors and machinists.

Much attention was attracted by the delivery of mails for China and Japan in London on Friday, 25 days after leaving Yokohama, despite three days' delay at New York, waiting for the fast Atlantic steamer. Allowing for this delay the result agrees well with the forecast of what the new route by the Canadian Pacific Railway would achieve, but it brings out clearly the present breakdown in the Atlantic link. High official circles in Toronto, it is stated, regard Canada's failure to provide an improved and adequate Atlantic service as virtually a breach of the conditions on which the imperial subsidy was granted for the Pacific service.

Two beef-packing concerns in Chicago are reported to do a business of from \$60,000,000 to \$80,000,000 each per annum.

Ramie experiments making by the Mexican Government by a machine and process recently invented show a capacity of 1½ tons of ramie per day, and that the fiber can be cleaned and degummed at a cost of about 4½ cents per pound.

An estimate of the losses sustained by the collapse of the "short-term endowment craze" in Philadelphia and vicinity,

as we find it in one of the local newspapers, places the total at \$2,500,000, representing the savings from small incomes which have been absolutely sunk. This amount is pronounced a conservative estimate, the whole of it paid in within less than three months. The *Record* says: Of this vast sum, less than \$600,000 was returned to certificate holders, while about \$309,200 is locked up in receiverships and assigneeships. Of this amount about \$107,000 belongs to the certificate holders of the Earnest Workers, \$60,000 to the Universal Order of Co-operation, \$60,000 to the Bi-monthly Endowment Society, \$75,000 to the Benevolent Endowment Association, and \$7200 to the Active Workers. In connection with the above, a considerable sum has been or will be returned to certificate holders of organizations that have gone into voluntary liquidation, but the amounts returned will be out of all proportion to the amounts paid in.

In Johnstown and Gloversville, N. Y., the electric motor is successfully used in running the sewing machines of the girls employed in making gloves at their homes and it is said that more and better work is the result and the conditions are more favorable to the health of the operatives.

The completion of the grand bridge across the Arkansas River at Fort Smith, will be celebrated May 27 with great *éclat*, Governors of neighboring States, Mayors, &c., participating. The completion of this railroad bridge on the Kansas and Arkansas Valley road means the completion of the connecting link with the Northwest, a direct short line to Kansas, Kansas City, Omaha and Dakota. It means the continuation of the Valley road through Texas to the Gulf of Mexico, passing through the southern counties of Western Arkansas, the opening of the rich mineral lands abounding in iron, lead, zinc, antimony, manganese, coal and coal oil; the timber forests which have been out of reach for want of transportation facilities will be traversed with iron rails, and yield billions of feet of merchantable timber. It means the inauguration of a reciprocal trade with the grain and meat-producing states of the West and the tropical products of the Gulf.

The rivalry between the railroads and the Erie Canal for the transportation of grain commenced this year with sharp reductions in the rates of freight. The former having secured most of the traffic at the opening of navigation, the canals made a still lower rate last week. Taking out the ½ cent that the canal boats give up to the Buffalo elevators, the actual canal rates are 2¼ cents for wheat 1½ cents for corn. This is far below the cost of transportation, with poor return freights. Owing to the high prices of grain, shippers want it sent through as rapidly as possible, and the rail lines have an advantage they do not usually possess.

Canadian exports to Great Britain thus far this year are reported to have decreased 40 per cent. compared with the same period in 1890, and the falling off was heaviest in April. Contrary to what might have been expected, the British market does not compensate the losses sustained as a consequence of the new American tariff.

Although the flax industry of Ireland steadily declines, the city of Belfast maintains its prominence in the linen trade, manufacturers there drawing upon Belgium, Russia and Holland for a large portion of their supplies.

The great Minneapolis mill combine, with a capital of nearly \$3,000,000, went into effect on the 12th inst. With the exception of the Pillsbury-Washburn-English syndicate, it is the largest combination of flouring mills in the world. It is stated A. C. Loring of Minneapolis will become

general manager. The capital will be divided into common and preferred stock, \$1,000,000 of which is to be preferred and the remainder common. As soon as the appraisers have concluded their work the stock of the new company will be apportioned.

Powderly and Gompers, the respective heads of the two principal divisions of labor in this country, make a balky team. In a circular just published Mr. Gompers of the Federation, referring to his rival, says he is more than satisfied that the time will come "when the mask of hypocrisy with which he has been strutting before the wage-workers of the country will be torn from his face." "There are many things" interesting to the toiling masses which Mr. Gompers "cannot make known" just at present, but Mr. Powderly may be able to speak for himself. For the pot to call the kettle black is generally entertaining, if not useful.

The Bahama Islands have a foreign commerce of about \$2,000,000 and of the increase last year over 80 per cent. was gained by the United States. Although the islands are a British colony there is no direct line either of steam or sailing vessels to any port in Great Britain. The greater part of the trade is in American bottoms. Over 87 per cent. of the entire produce of Barbadoes finds a market at present in the United States.

Governor Crawford of Kansas, in speaking of the enormous crops of corn and wheat promised by that State this year, of an estimated value of not less than \$80,000,000, observes that Kansas is larger in area than all New England, New York, New Jersey, Delaware and Maryland combined. The wheat crop, already assured, is estimated at 65,000,000 bushels, while that of corn, in all probability, will not fall short of 250,000,000 bushels.

How an established credit may be equivalent to ready cash is illustrated in the practice of the English discount banks, few of which carry more than 15 per cent. of their deposits and acceptances. But their safety has been demonstrated by the experience of half a century. The cash liquidation of such a volume of liabilities as those carried by the London banks would be out of the question, and any banking system that would appear to provide for such immediate cash payment of claims would break down at the moment of trial. The bankers of London, therefore, place their reliance, not upon the volume of their cash reserves, but upon the community of interest and interdependence which compels them, in the face of great financial emergencies, to combine for their common protection, at the time of the Baring failure the intervention of the syndicate abated the first symptoms of panic at once. They simply reared round the fallen house a wall of impregnable credit, and that sufficed to save London from a great financial crisis.

A tabulated statement of our gold exports and imports for the past six years, prepared by the *Daily Stockholder*, shows that, while the aggregate exports and imports for the years 1885-90 amounted to nearly \$325,000,000, the net loss to this country was only \$18,325,123. The history of these years shows that our gold exports have almost always been heavy in the months from February to July, while in the latter six months of the year the current of the yellow metal has turned and flowed back from Europe to America again.

Advices from Europe are more pacific, at least so far as concerns the intentions of the Russian Government. Herr Bleichroeder, the well-known banker, who shares the Rothschilds' financial power on the Continent of Europe, professes to speak

advisedly when he states with confidence that for three years Russia will not think of war. He claims to have received positive information that Russia is upon the point of changing her armament. She has adopted a new rifle, and it will take three years to arm her troops with the new weapons, and Russia dare not go to war in the midst of such an important change.

The exports from the United States of various commodities during April are reported by the Bureau of Statistics as follows, compared with previous dates :

Cotton :	1891.	Changes.
Month April.....	\$20,560,977	Inc. \$9,936,619
Eight months.....	263,458,441	Inc. 28,577,424
Mineral oils :		
Month April.....	3,808,250	Inc. 91,963
Ten months.....	43,601,906	Inc. 1,644,580
Beef and hogs :		
Month April.....	9,289,781	Inc. 394,530
Six months.....	64,283,408	Inc. 4,288,956
Breadstuffs :		
Month April.....	12,373,827	Dec. 3,170,085
Four months.....	42,820,540	Dec. 14,600,399

Details of the reciprocity arrangement with Spain cabled to Washington from Madrid show that in respect of manufactures of iron and steel the United States will possess no new advantage until next year, but a growing market for American tools and agricultural implements in Cuba may be expected.

The keel of a steel bark, to cost about \$100,000, the first built in this country, will soon be laid in Harrison Loring's yard, at South Boston, for Capt. Chas. H. Nelson. Her length will be 220 feet, and her tonnage 1398 tons. She is intended for the Boston and East India trade.

A conference of State delegates, called at the Mexican capital by the Government, to consider the subject of removing taxes on imported merchandise levied by various local authorities, has devised a plan which will be first approved by Congress before it is ratified by the several States.

A Berlin dispatch says the negotiations for a German-Austrian commercial treaty with Spain have become curiously involved with the reciprocity convention proposed by Gen. John W. Foster, the special representative of the United States. Spain has agreed to give American imports into Cuba and Porto Rico a differential rate of 25 per cent. against similar imports from all other countries, whether or not they conclude treaties with Spain. Such a privilege, constituting a practical customs union between the United States and the Spanish Antilles, blocks further negotiations which the German Ambassador has undertaken simultaneously with the Austrian, Italian and Belgian Ministers.

The coke operators in Pennsylvania claim that 37 per cent. of their ovens are running. Last week's shipments were 2500 cars.

The fact that by the new treaty with Brazil American cotton manufactures are to be admitted at rates of duty 25 per cent. less than those imposed upon similar articles made in England excites deep concern in Lancashire, and not unnaturally, for England sends every year to Brazil over £2,500,000 worth of cotton goods, which she is liable to lose.

The domestic fruit trade of the United States is acquiring large proportions. The shipments of California fruit to the trade centers of the country showed a remarkable increase last year; the receipts at New York being estimated at nearly 15,000,000 pounds or more than 700 carloads, as compared with 400 carloads the previous year, and it is estimated that the present season will witness as great an increase over last year's figures. According to census returns the California product of grapes for table use alone was 38,000

tons in 1889, while the raisin yield of 1890 was 2,197,000 boxes, and the young raisin vineyards promise to increase the product within the next five years to 8,000,000 or 10,000,000 boxes. The development of the Florida orange crop, with its estimated yield of 2,000,000 boxes in 1889-90 and 2,500,000 boxes in 1890-91 and 4,000,000 boxes next season, is scarcely less remarkable. The statistics of the grape culture of the United States as presented in a census bulletin recently issued show that 200,000 persons and \$150,000,000 of capital are employed in this industry, with a product in 1889 of 572,000 tons of grapes, of which more than 267,000 tons were sold for table use, 240,000 for wine, 41,000 for raisins and 23,000 for dried grapes, &c.

The "silver nuisance" is a subject of complaint in Canada. American coins have become abundant in districts bordering on the States, and their use is spreading into the interior. As they displace the national coinage and as some of the banks find the accumulation troublesome, Canadians are urged by the local newspapers to receive foreign coins subject to discount.

The New York Maritime Association adopted a resolution that Congress take action to make the Hudson River navigable to Albany by ocean steamships.

Spirit dealers in London and Paris have formed a large combination to ship grape must from California to Europe for distillation.

German merchants are about building a line of tank steamers for the American petroleum trade. Russian petroleum is being gradually driven out of that market.

China will participate in the World's Fair Columbian Exposition.

Dock Commissioner Cram says that the department have decided to build no more iron or stone piers. In the East and North rivers are many points where it would be necessary to dig down for 60 or 70 feet before reaching rock bottom.

In the absence of a mail contract for ocean transportation Canadians are compelled to do their correspondence with Europe via New York, which is galling to their pride and is unsatisfactory as a business arrangement. It appears that the Government offered as high as \$750,000 per annum in the nature of a subsidy, but this amount was coupled with a condition that steamers of the "ocean greyhound" class should be employed, and, therefore, was declined. A Montreal paper has authority for asserting that to justify the building of four such steamers for the Atlantic mail of Canada a yearly subsidy of close upon \$1,000,000 would be necessary, as for a very long season receipts from passengers and freight would fall far short of running expenses.

The plant of the Tyler Tube and Pipe Company, at Washington, Pa., is well equipped for the manufacture of boiler tubes, of which product the concern makes a specialty. The mill department contains an 18-inch Garrison train of rolls, run by a Corliss engine, steam being supplied by Babcock & Wilcox boilers. The shears have separate engines, thus doing away with belting. Two large heating furnaces are used, turning out 56,000 pounds of iron per turn. The tube mill is 250 x 80 feet in size, and contains Swindell & Smythe's latest regenerative furnace for welding tubes, and also the cutting-off machines. Natural gas is used for fuel. Nothing but fine charcoal iron blooms are used, which are made at the Principio Furnace and Forge in Maryland. W. P. Tyler is president of the company and D. M. Boyd superintendent.

The Coke Strike.

Under date of 16th inst. the labor leaders in the strike of the coke workers in the Connellsville region issued the following announcement:

SCOTSDALE, PA., May 16, 1891.

To the officers and members of District 4, Knights of Labor, greeting:

Whereas, It has been charged that the officers of District 4 have been conducting the present strike in opposition to the wishes of the rank and file of the order, and public opinion has, to a certain degree, been influenced against our cause by unfair, untruthful and malicious accusations that have and are being made, we, your district officers, deem it advisable to call a district delegate convention of the K. of L. for the purpose of having an expression from the rank and file, and to adopt measures whereby their will can be successfully executed.

We ask you to promptly act on the following:

Take a secret ballot on whether we shall continue or discontinue the strike. Record the number voting for and against.

What is the condition of the men of your local?

How many evictions have been made and how many are there depending on support?

How many ovens are running in your neighborhood, and how many men are there at work? Are the men at work new or old employees?

Call special meetings immediately and take action on the above.

The district meeting to be held in Byrne's hall, Scottdale, Tuesday, May 19, at 9 o'clock.

Yours respectively and fraternally,

PETER WISE, Master Workman.
C. M. PARKER, District Secretary-Treasurer.

It is not expected that any action that may be taken by the labor leaders will have any effect on the coke operators, as it is conceded by all, except the strikers themselves, that they are making a useless fight, and that it will only be a short time until there are sufficient men at work to operate all the ovens that the coke operators may desire to start up. The force of men is being increased daily, and the shipments from the region are also constantly increasing. It is expected that by June 1 there will be very few idle ovens in the entire region.

New Electric Street Car.

During the present week there will be put in operation at Pittsburgh a new electric street car line, known as the Duquesne Traction. The line extends from the heart of Pittsburgh into the suburbs of that city. The distance covered by the tracks owned by the company amounts to about 28 miles. The track work of road has been done with great care, the foundations being of concrete, on which oak cross ties rest and support the steel girder rails. The space between the tracks, and one foot outside is paved with Ligonier block. In addition to the usual trolley wire, which is supported in a substantial manner on iron pipe poles, there are about 16 miles of heavily insulated feed wire, supplying the trolley wire at different points. The overhead line is subdivided into seven sections, any one of which may be cut out without interference with the rest of the line. The cars, like those in operation on the cable roads in Pittsburgh, are equipped with double trucks and ride as smoothly as those in use on the cable lines, avoiding the swinging motion of those equipped with only four wheels. The rails and iron work in the tracks were furnished by the Wharton Steel Company of Philadelphia; engine and boilers by Robert Wetherill & Sons of Chester, Pa.; track work by Booth & Flinn; buildings by C. A. Balph and C. G. Dixon; the iron work in the buildings by Riter & Conley and the Keystone Bridge Works; the electrical equipment by the Thomson-Houston Company of Boston, and the wire by Roebling & Sons of Trenton, N. J., and the Circular Loom Company of Boston.

The Iron Age

New York, Thursday, May 21, 1891.

DAVID WILLIAMS, - - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - - EDITOR.
GEO. W. COPE, - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS - - - HARDWARE EDITOR.
JOHN S. KING, - - - BUSINESS MANAGER.

The Depletion of Gold.

The stability of the American money market in the face of exports of specie from this country at a rate which already approaches \$50,000,000 since January 1, nearly all of it in gold, affords gratifying evidence of the enormous wealth and resources of the United States. While the Bank of England recently felt impelled to borrow from France, in order to tide over an extreme emergency, and while at the present moment every country in Europe is struggling with grave financial problems, the great republic of the New World pursues its way undisturbed. We first took with little flinching \$100,000,000 of American securities held abroad, and now are able to part with half that sum in specie. No other single fact could impress the capitalists of Europe more deeply with a sense of the security of American investments; nothing points more unerringly to the future grand development of the United States as a commercial center, if no unforeseen disaster should occur to mar its prosperity. So recently as within a single week one of the most astute financiers of Europe, Herr Bleichroeder of Germany, saw fit to remark: "You can tell the Associated Press that Americans have no reason to feel nervous about the gold taken away from the United States. It will soon float back. Russia has to repay the Dutch loans of 1790 and 1850, and that is the reason she is accumulating all the gold she can. By and by this gold must be paid out and will naturally return whence it came."

This is a pleasing assurance, and the more readily accepted because, so far as relates to the speedy return of gold to this country, the remark is in accord with American ideas of the present situation. Encouraged by the promise of an extraordinary wheat crop, now estimated at not less than 500,000,000 bushels, for which Europe will offer a ready market, and this auspicious circumstance immediately succeeding a cotton crop known to surpass the most sanguine expectations, not less than 8,500,000 bales being actually in sight, the prediction of the eminent German banker seems likely to be verified. Already Portugal, France, Spain and other heavy bread consumers are removing their custom-house barriers for the admission of American grain. Indeed, to count upon a favorable balance of trade which must be settled in gold it is not necessary to anticipate. Already the outward flow of gold has passed the stage where Europe is calling for the set-

tlement of indebtedness incurred in the past, the high premium paid by the Bank of England for American coin being indubitable evidence that foreign governments are drawing upon the United States to tide over an emergency, irrespective of ordinary considerations of profit and loss. The commonly accepted theory is that Russia is the primal source of disturbance and that her demands upon London, Paris and Berlin cannot be evaded.

But it is well to take heed and not allow sanguine expectations to have undue influence. There are bond redemptions in the future and questions related to a redundant coinage of silver that will call into exercise the combined wisdom of our shrewdest financiers. The maturing of some \$50,000,000 of 4½s in September is at the present moment supposed to be a subject of deliberation, and a new issue or some other fitting expedient will doubtless be agreed upon to solve the difficulty. And in regard to another possible source of disturbance, it is allowable to quote the banker, Henry Clews, who remarks: "Whatever may come of our silver currency, our stock of gold is now so large that at worst it would require years to bring about the depreciation of the current value of silver money now so hastily predicted; and, in the meantime, we shall have plenty of time to correct any errors of legislation that experience may prove we have made."

Nevertheless, from various sources come suggestions that a check should be imposed on speculative transactions, at least until the financial clouds hovering here and there shall, in some measure, have been dissipated. The general freedom from undue expansion in most business departments, as shown by the comparative infrequency of failures where a conservative course has been pursued, is the best assurance of continued stability and development.

An English Critic on American Iron Manufacture.

Sir James Kitson, who, as president of the Iron and Steel Institute, visited this country last fall, has presented his views on what he observed in the May issue of the *Contemporary Review*. The descriptive parts of his article possess little interest for Americans, and his generous praise of the hospitality accorded to himself and to others will be accepted gracefully. We have a deeper and more direct interest in those of his utterances which refer to those points in which we are supposed to be deficient and those in which we have secured advantages. Sir James Kitson is emphatic on the activity of American workmen as compared with their Transatlantic brethren. We cannot do better than to quote the passage in question:

At these works (the Baldwin Locomotive Works) the English visitors had the first opportunity of seeing the skilled American artisan at work, and of judging the comparative capabilities of English and American workmen. Every one agreed that the American skilled artisan puts forth more physical effort and produces more work in a given time than the

English workman, or the workman of any other manufacturing community. This fact struck me and many experienced directors of works most forcibly. Before concluding our tour I had the opportunity of verifying and strengthening this first impression. After watching the American workmen at Pittsburgh and elsewhere I arrived at the same conclusion as to their efficiency. Their productive power is greater than that of the English workers in the same time, and their working hours are longer, and their remuneration greater. I met one of my old workmen at Mr. Carnegie's works in Pittsburgh, and he indorsed my opinion. Speaking from his own practical experience: "I am quite a different man here," he said, "from what I was in the old country; I don't know why it is so; whether it is that I live in a stimulating atmosphere, or whether it is the example set me; but I know I have got the go in me here. I can do more work; I feel that I have it in me; but I also feel and I know that it won't last. I shall be done in ten years." No, it won't last. The extreme physical effort put forth results in greater production, but it saps the vital energies and cuts short the career. This continual work at high pressure does not pay in the end. "It won't last"; and the remark applies with equal force to the employers as well as to the workers. Competition between manufacturers is keener than in this country. They work their business at high pressure. There is a terrific struggle between them for possession of the markets. They put forth their utmost energies, and when they succeed their reward is great; but all cannot be the leaders in industry. This fierce competition reacts on the men. We were surprised to find in a democratic country like America that the workmen had so little power, and were to such a large extent the docile instruments of energetic employers.

The "bosses"—as the foremen and managers of factories are called—drive the men to an extent that employers would never dream of attempting in this country. There are trade unions, but they do not seem able to protect the men in this respect. The "bosses" have the faculty of "driving" the men and getting the maximum amount of work out of them, and the men do not seem to have the inclination or power to resist the pressure. American manufacturers thus get the greatest possible service out of their plant.

We fear that the former president of the Iron and Steel Institute has thoroughly misunderstood the situation. American workmen do not labor harder because they are "driven" more. The majority of them do so because they are ambitious. They know that there is a possibility that with energy and prudence they can accumulate money and can rise to become employers themselves. The pace which is set by the more ambitious forces that of the others, who would otherwise be content to limit themselves to acquiring a bare subsistence.

Toward the close of his article he asks and answers the following question:

The special features of the iron and steel industry in America have been indicated; what, it may be asked, are the leading characteristics of those engaged in the work? I would answer, their quickness to adopt improvements, and their readiness to adopt scientific methods in the processes of manufacture. Great as has been the industrial growth of America, marvelous as are the mechanical achievements of Americans, we can still claim that the inventions which have brought the manufacture of iron and steel to its present state of perfection are of English origin. The Americans have not invented, they have improved. They had not time to experiment, they have appropriated. They possess a surprising gift of receptivity, and a peculiar faculty for adaptation. When the great development in American manufacture took place, Americans engaged in the iron and steel trade had the best practice and the

advisedly when he states with confidence that for three years Russia will not think of war. He claims to have received positive information that Russia is upon the point of changing her armament. She has adopted a new rifle, and it will take three years to arm her troops with the new weapons, and Russia dare not go to war in the midst of such an important change.

The exports from the United States of various commodities during April are reported by the Bureau of Statistics as follows, compared with previous dates:

Cotton:	1891.	Changes.
Month April.....	\$20,560,977	Inc. \$9,636,619
Eight months.....	263,458,441	Inc. 28,577,424
Mineral oils:		
Month April.....	3,808,250	Inc. 91,963
Ten months.....	43,691,906	Inc. 1,644,580
Beef and hogs:		
Month April.....	9,289,781	Inc. 394,530
Six months.....	64,283,408	Inc. 4,288,956
Breadstuffs:		
Month April.....	12,373,827	Dec. 3,170,085
Four months.....	42,820,540	Dec. 14,666,399

Details of the reciprocity arrangement with Spain cabled to Washington from Madrid show that in respect of manufactures of iron and steel the United States will possess no new advantage until next year, but a growing market for American tools and agricultural implements in Cuba may be expected.

The keel of a steel bark, to cost about \$100,000, the first built in this country, will soon be laid in Harrison Loring's yard, at South Boston, for Capt. Chas. H. Nelson. Her length will be 220 feet, and her tonnage 1398 tons. She is intended for the Boston and East India trade.

A conference of State delegates, called at the Mexican capital by the Government, to consider the subject of removing taxes on imported merchandise levied by various local authorities, has devised a plan which will be first approved by Congress before it is ratified by the several States.

A Berlin dispatch says the negotiations for a German-Austrian commercial treaty with Spain have become curiously involved with the reciprocity convention proposed by Gen. John W. Foster, the special representative of the United States. Spain has agreed to give American imports into Cuba and Porto Rico a differential rate of 25 per cent. against similar imports from all other countries, whether or not they conclude treaties with Spain. Such a privilege, constituting a practical customs union between the United States and the Spanish Antilles, blocks further negotiations which the German Ambassador has undertaken simultaneously with the Austrian, Italian and Belgian Ministers.

The coke operators in Pennsylvania claim that 37 per cent. of their ovens are running. Last week's shipments were 2500 cars.

The fact that by the new treaty with Brazil American cotton manufactures are to be admitted at rates of duty 25 per cent. less than those imposed upon similar articles made in England excites deep concern in Lancashire, and not unnaturally, for England sends every year to Brazil over £2,500,000 worth of cotton goods, which she is liable to lose.

The domestic fruit trade of the United States is acquiring large proportions. The shipments of California fruit to the trade centers of the country showed a remarkable increase last year; the receipts at New York being estimated at nearly 15,000,000 pounds or more than 700 carloads, as compared with 400 carloads the previous year, and it is estimated that the present season will witness as great an increase over last year's figures. According to census returns the California product of grapes for table use alone was 38,000

tons in 1889, while the raisin yield of 1890 was 2,197,000 boxes, and the young raisin vineyards promise to increase the product within the next five years to 8,000,000 or 10,000,000 boxes. The development of the Florida orange crop, with its estimated yield of 2,000,000 boxes in 1889-90 and 2,500,000 boxes in 1890-91 and 4,000,000 boxes next season, is scarcely less remarkable. The statistics of the grape culture of the United States as presented in a census bulletin recently issued show that 200,000 persons and \$150,000,000 of capital are employed in this industry, with a product in 1889 of 572,000 tons of grapes, of which more than 267,000 tons were sold for table use, 240,000 for wine, 41,000 for raisins and 23,000 for dried grapes, &c.

The "silver nuisance" is a subject of complaint in Canada. American coins have become abundant in districts bordering on the States, and their use is spreading into the interior. As they displace the national coinage and as some of the banks find the accumulation troublesome, Canadians are urged by the local newspapers to receive foreign coins subject to discount.

The New York Maritime Association adopted a resolution that Congress take action to make the Hudson River navigable to Albany by ocean steamships.

Spirit dealers in London and Paris have formed a large combination to ship grape must from California to Europe for distillation.

German merchants are about building a line of tank steamers for the American petroleum trade. Russian petroleum is being gradually driven out of that market.

China will participate in the World's Fair Columbian Exposition.

Dock Commissioner Cram says that the department have decided to build no more iron or stone piers. In the East and North rivers are many points where it would be necessary to dig down for 60 or 70 feet before reaching rock bottom.

In the absence of a mail contract for ocean transportation Canadians are compelled to do their correspondence with Europe via New York, which is galling to their pride and is unsatisfactory as a business arrangement. It appears that the Government offered as high as \$750,000 per annum in the nature of a subsidy, but this amount was coupled with a condition that steamers of the "ocean greyhound" class should be employed, and, therefore, was declined. A Montreal paper has authority for asserting that to justify the building of four such steamers for the Atlantic mail of Canada a yearly subsidy of close upon \$1,000,000 would be necessary, as for a very long season receipts from passengers and freight would fall far short of running expenses.

The plant of the Tyler Tube and Pipe Company, at Washington, Pa., is well equipped for the manufacture of boiler tubes, of which product the concern makes a specialty. The mill department contains an 18-inch Garrison train of rolls, run by a Corliss engine, steam being supplied by Babcock & Wilcox boilers. The shears have separate engines, thus doing away with belting. Two large heating furnaces are used, turning out 56,000 pounds of iron per turn. The tube mill is 250 x 80 feet in size, and contains Swindell & Smythe's latest regenerative furnace for welding tubes, and also the cutting-off machines. Natural gas is used for fuel. Nothing but fine charcoal iron blooms are used, which are made at the Principio Furnace and Forge in Maryland. W. P. Tyler is president of the company and D. M. Boyd superintendent.

The Coke Strike.

Under date of 16th inst. the labor leaders in the strike of the coke workers in the Connellsville region issued the following announcement:

SCOTSDALE, PA., May 16, 1891.

To the officers and members of District 4, Knights of Labor, greeting:

Whereas, It has been charged that the officers of District 4 have been conducting the present strike in opposition to the wishes of the rank and file of the order, and public opinion has, to a certain degree, been influenced against our cause by unfair, untruthful and malicious accusations that have and are being made, we, your district officers, deem it advisable to call a district delegate convention of the K. of L. for the purpose of having an expression from the rank and file, and to adopt measures whereby their will can be successfully executed.

We ask you to promptly act on the following:

Take a secret ballot on whether we shall continue or discontinue the strike. Record the number voting for and against.

What is the condition of the men of your local?

How many evictions have been made and how many are there depending on support?

How many ovens are running in your neighborhood, and how many men are there at work? Are the men at work new or old employees?

Call special meetings immediately and take action on the above.

The district meeting to be held in Byrne's hall, Scottdale, Tuesday, May 19, at 9 o'clock. Yours respectively and fraternally.

PETER WISE, Master Workman.

C. M. PARKER, District Secretary-Treasurer.

It is not expected that any action that may be taken by the labor leaders will have any effect on the coke operators, as it is conceded by all, except the strikers themselves, that they are making a useless fight, and that it will only be a short time until there are sufficient men at work to operate all the ovens that the coke operators may desire to start up. The force of men is being increased daily, and the shipments from the region are also constantly increasing. It is expected that by June 1 there will be very few idle ovens in the entire region.

New Electric Street Car.

During the present week there will be put in operation at Pittsburgh a new electric street car line, known as the Duquesne Traction. The line extends from the heart of Pittsburgh into the suburbs of that city. The distance covered by the tracks owned by the company amounts to about 28 miles. The track work of road has been done with great care, the foundations being of concrete, on which oak cross ties rest and support the steel girder rails. The space between the tracks, and one foot outside is paved with Ligonier block. In addition to the usual trolley wire, which is supported in a substantial manner on iron pipe poles, there are about 16 miles of heavily insulated feed wire, supplying the trolley wire at different points. The overhead line is subdivided into seven sections, any one of which may be cut out without interference with the rest of the line. The cars, like those in operation on the cable roads in Pittsburgh, are equipped with double trucks and ride as smoothly as those in use on the cable lines, avoiding the swinging motion of those equipped with only four wheels. The rails and iron work in the tracks were furnished by the Wharton Steel Company of Philadelphia; engine and boilers by Robert Wetherill & Sons of Chester, Pa.; track work by Booth & Flinn; buildings by C. A. Balph and C. G. Dixon; the iron work in the buildings by Riter & Conley and the Keystone Bridge Works; the electrical equipment by the Thomson-Houston Company of Boston, and the wire by Roebbling & Sons of Trenton, N. J., and the Circular Loom Company of Boston.

The Iron Age

New York, Thursday, May 21, 1891.

DAVID WILLIAMS, - - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - - EDITOR.
GEO. W. COPE, - - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS - - - HARDWARE EDITOR.
JOHN S. KING, - - - BUSINESS MANAGER.

The Depletion of Gold.

The stability of the American money market in the face of exports of specie from this country at a rate which already approaches \$50,000,000 since January 1, nearly all of it in gold, affords gratifying evidence of the enormous wealth and resources of the United States. While the Bank of England recently felt impelled to borrow from France, in order to tide over an extreme emergency, and while at the present moment every country in Europe is struggling with grave financial problems, the great republic of the New World pursues its way undisturbed. We first took with little flinching \$100,000,000 of American securities held abroad, and now are able to part with half that sum in specie. No other single fact could impress the capitalists of Europe more deeply with a sense of the security of American investments; nothing points more unerringly to the future grand development of the United States as a commercial center, if no unforeseen disaster should occur to mar its prosperity. So recently as within a single week one of the most astute financiers of Europe, Herr Bleichroeder of Germany, saw fit to remark: "You can tell the Associated Press that Americans have no reason to feel nervous about the gold taken away from the United States. It will soon float back. Russia has to repay the Dutch loans of 1790 and 1850, and that is the reason she is accumulating all the gold she can. By and by this gold must be paid out and will naturally return whence it came."

This is a pleasing assurance, and the more readily accepted because, so far as relates to the speedy return of gold to this country, the remark is in accord with American ideas of the present situation. Encouraged by the promise of an extraordinary wheat crop, now estimated at not less than 500,000,000 bushels, for which Europe will offer a ready market, and this auspicious circumstance immediately succeeding a cotton crop known to surpass the most sanguine expectations, not less than 8,500,000 bales being actually in sight, the prediction of the eminent German banker seems likely to be verified. Already Portugal, France, Spain and other heavy bread consumers are removing their custom-house barriers for the admission of American grain. Indeed, to count upon a favorable balance of trade which must be settled in gold it is not necessary to anticipate. Already the outward flow of gold has passed the stage where Europe is calling for the set-

tlement of indebtedness incurred in the past, the high premium paid by the Bank of England for American coin being indubitable evidence that foreign governments are drawing upon the United States to tide over an emergency, irrespective of ordinary considerations of profit and loss. The commonly accepted theory is that Russia is the primal source of disturbance and that her demands upon London, Paris and Berlin cannot be evaded.

But it is well to take heed and not allow sanguine expectations to have undue influence. There are bond redemptions in the future and questions related to a redundant coinage of silver that will call into exercise the combined wisdom of our shrewdest financiers. The maturing of some \$50,000,000 of 4½s in September is at the present moment supposed to be a subject of deliberation, and a new issue or some other fitting expedient will doubtless be agreed upon to solve the difficulty. And in regard to another possible source of disturbance, it is allowable to quote the banker, Henry Clews, who remarks: "Whatever may come of our silver currency, our stock of gold is now so large that at worst it would require years to bring about the depreciation of the current value of silver money now so hastily predicted; and, in the meantime, we shall have plenty of time to correct any errors of legislation that experience may prove we have made."

Nevertheless, from various sources come suggestions that a check should be imposed on speculative transactions, at least until the financial clouds hovering here and there shall, in some measure, have been dissipated. The general freedom from undue expansion in most business departments, as shown by the comparative infrequency of failures where a conservative course has been pursued, is the best assurance of continued stability and development.

An English Critic on American Iron Manufacture.

Sir James Kitson, who, as president of the Iron and Steel Institute, visited this country last fall, has presented his views on what he observed in the May issue of the *Contemporary Review*. The descriptive parts of his article possess little interest for Americans, and his generous praise of the hospitality accorded to himself and to others will be accepted gracefully. We have a deeper and more direct interest in those of his utterances which refer to those points in which we are supposed to be deficient and those in which we have secured advantages. Sir James Kitson is emphatic on the activity of American workmen as compared with their Transatlantic brethren. We cannot do better than to quote the passage in question:

At these works (the Baldwin Locomotive Works) the English visitors had the first opportunity of seeing the skilled American artisan at work, and of judging the comparative capabilities of English and American workmen. Every one agreed that the American skilled artisan puts forth more physical effort and produces more work in a given time than the

English workman, or the workman of any other manufacturing community. This fact struck me and many experienced directors of works most forcibly. Before concluding our tour I had the opportunity of verifying and strengthening this first impression. After watching the American workmen at Pittsburgh and elsewhere I arrived at the same conclusion as to their efficiency. Their productive power is greater than that of the English workers in the same time, and their working hours are longer, and their remuneration greater. I met one of my old workmen at Mr. Carnegie's works in Pittsburgh, and he indorsed my opinion. Speaking from his own practical experience: "I am quite a different man here," he said, "from what I was in the old country; I don't know why it is so; whether it is that I live in a stimulating atmosphere, or whether it is the example set me; but I know I have got the go in me here. I can do more work; I feel that I have it in me; but I also feel and I know that it won't last. I shall be done in ten years." No, it won't last. The extreme physical effort put forth results in greater production, but it saps the vital energies and cuts short the career. This continual work at high pressure does not pay in the end. "It won't last"; and the remark applies with equal force to the employers as well as to the workers. Competition between manufacturers is keener than in this country. They work their business at high pressure. There is a terrific struggle between them for possession of the markets. They put forth their utmost energies, and when they succeed their reward is great; but all cannot be the leaders in industry. This fierce competition reacts on the men. We were surprised to find in a democratic country like America that the workmen had so little power, and were to such a large extent the docile instruments of energetic employers.

The "bosses"—as the foremen and managers of factories are called—drive the men to an extent that employers would never dream of attempting in this country. There are trade unions, but they do not seem able to protect the men in this respect. The "bosses" have the faculty of "driving" the men and getting the maximum amount of work out of them, and the men do not seem to have the inclination or power to resist the pressure. American manufacturers thus get the greatest possible service out of their plant.

We fear that the former president of the Iron and Steel Institute has thoroughly misunderstood the situation. American workmen do not labor harder because they are "driven" more. The majority of them do so because they are ambitious. They know that there is a possibility that with energy and prudence they can accumulate money and can rise to become employers themselves. The pace which is set by the more ambitious forces that of the others, who would otherwise be content to limit themselves to acquiring a bare subsistence.

Toward the close of his article he asks and answers the following question:

The special features of the iron and steel industry in America have been indicated; what, it may be asked, are the leading characteristics of those engaged in the work? I would answer, their quickness to adopt improvements, and their readiness to adopt scientific methods in the processes of manufacture. Great as has been the industrial growth of America, marvelous as are the mechanical achievements of Americans, we can still claim that the inventions which have brought the manufacture of iron and steel to its present state of perfection are of English origin. The Americans have not invented, they have improved. They had not time to experiment, they have appropriated. They possess a surprising gift of receptivity, and a peculiar faculty for adaptation. When the great development in American manufacture took place, Americans engaged in the iron and steel trade had the best practice and the

best methods of Europe before them. They were never handicapped by preliminary experiment. Special commissioners on behalf of the leading American ironmasters examined the Bessemer process after it had been established in England. After inquiry they profited by English experience. Thus many mistakes were avoided and much time saved. With this knowledge, supplemented by their own ingenuity for mechanical devices and appliances, they were able to lay down plant of the best models, and of great strength and capacity, so that their Bessemer plant compares favorably with any to be found in Europe. Their blast furnaces are more capacious than ours, their engines are more powerful, their rolling mills are of new and improved construction. The high standard of education, and especially of the technical education, of the people in America undoubtedly is much to their advantage, and we everywhere recognized a promptness to discard old methods and plant, and an alertness to adapt the newest and most scientific methods of production.

Since frank discussion is in order, we may state that the attitude of their guests to what they were showing them was a source of never ending wonder to their American hosts. The first impulse of the Englishmen seemed usually to be either to deliberately close their eyes to anything which constituted an improvement over their own methods, or to belittle it. Resistance to change appears to be as much their characteristic as eagerness to seize anything that is new and may contain the germs of improvement is a leading motive with the American. Even if it were true that in the manufacture of iron and steel the Englishmen invent, while Americans improve and adapt—a generalization which we emphatically deny the justice of—even if it were true, it would explain just what is constantly happening. Our practice in a good many branches is far ahead of that of our insular friends. The sons of the men who can calmly say that American "Bessemer plant compares favorably with any to be found in Europe" will find that unless they Americanize themselves promptly they will be beaten out of neutral markets. One would be inclined to think that their experience with the Germans as competitors should teach Englishmen that however great the achievement may be of inventing, for instance, the basic process, it must remain a barren victory unless developed to its full capacity. An Englishman, it is true, invented the Bessemer process, but there is not now in England a works which can compare in efficiency with a number of American establishments. Nor is this an isolated instance.

Industrial Securities.

Hardly a day passes without witnessing the placing before investors of a prospectus bringing out securities, which Wall street has learned to classify as the "industrial." They embrace a wide range of undertakings, including both manufacturing and commercial enterprises. Although it is reported that some of them have not met with success, the majority evidently have been floated successfully, since some banking firms have displayed great activity in acting as sponsors of such companies. On the whole, the methods are the same which have prevailed for

years in England, and the reasons which actuate seller and buyer on both sides of the Atlantic are practically identical. Good bonds do not, even in the present depressed condition in the leading financial center, bring more than 5 per cent. Railroad stocks have ceased to be attractive to small investors, and the more speculative issues, like mining shares, are shunned by those who have had a bitter experience in the roguery and trickery of promoters and insiders. There is little chance for large returns in improved real estate for small investors, and unimproved property of this class is too uncertain and too costly a property to carry. There is something very attractive, therefore, in the chance to participate in the profits of well-known prosperous concerns without taking any serious risk, and this constitutes the attractive feature of industrial stocks.

Until now the method pursued has been to offer for subscription preferred and common stock, either both, or only the former, the feature being that the preferred has a cumulative lien on the profits. In other words, the holders of the preferred stock are entitled to 7 or 8 per cent., which are usually the figures. If they are not earned in any one or more years, the unearned interest must first come out of the profits of the later years. Thus far nearly every one of the companies brought out have been long established concerns, known to be prosperous, whose owners can show large profits for a series of years. These profits, generally embracing at least five years, are certified to by public accountants. They are in all the cases which have come under our notice large enough to apparently place beyond a doubt the earning of the interest on the preferred stock, and where common stock is offered leave a balance for dividends on the latter, at a considerably higher rate. In other words, the capitalization is put at a moderate rate. A statement of assets generally accompanies the report.

The motive for selling out, on the part of those who offer these industrial securities, in the majority of cases, is, apparently, the desire to withdraw after a reasonable time. The assets of a going concern, which has grown from small beginnings—assets which really represent the greater part of the accumulated profits—are not readily saleable by private bargain. Partners have rarely drawn out, and accumulated enough outside capital to purchase the whole interest of those who wish to realize. Besides, the vendors generally retain an interest in the property as holders of some preferred stock and in larger quantity of common stock.

It is reported that thus far the investing public has taken hold better of the preferred shares, for which a decided partiality has been shown, while the common stock has been comparatively neglected. This indicates that as yet little interest has been taken by persons who are of a speculative turn of mind, but that the purchases made have been really for investment.

Meeting of the Tin Plate Manufacturers at Pittsburgh.

(By Telegraph to The Iron Age.)

An adjourned meeting of the recently organized Tin Plate Manufacturers' Association was held in the Hotel Anderson, Pittsburgh, to-day. The meeting was called to order at 11.30 a. m. by J. W. Britton, chairman pro tem., C. R. Britton acting as secretary. The following named concerns were represented: J. W. Britton, C. R. Britton, Britton Rolling Mill Company, Cleveland, Ohio; F. F. Niedringhaus, St. Louis Stamping Company, St. Louis, Mo.; D. W. Somers, Somers Brothers, Brooklyn, N. Y.; J. P. Battelle, Piqua Rolling Mill Company, Piqua, Ohio; Jos. Corns, Joseph Corns & Sons, Massillon, Ohio; Reeves Iron Company, Canal Dover, Ohio; Myron I. Arms, Falcon Iron and Nail Company, Niles, Ohio; Lewis Bros. & Co., Pittsburgh, Pa.; Alfred Marshall, Marshall Bros. & Co., Philadelphia, Pa.; W. C. Cronmeyer, U. S. Iron and Tin Plate Company, Limited, Demmler, Pa.; P. H. Laufman, P. H. Laufman & Co., Limited, Apollo, Pa.; F. H. Phillips, Welsh American Tin Plate Company, Limited, Philadelphia, Pa.; Jennings Bros. & Co., Pittsburgh, Pa.; Canonsburg Iron and Steel Company, Canonsburg, Pa.; Kirkpatrick & Co., Leechburg, Pa.; Iron Dale Steel and Iron Company, Anderson, Ind.; P. S. Louck, Scottdale Iron and Steel Company, Scottdale, Pa. In addition to the above, a number of persons were present in the capacity of guests, among whom were J. F. Wilcox of the Pittsburgh Iron and Steel Engineering Company, and W. H. Rea of Robinson & Rea Mfg. Company, both of Pittsburgh. On motion of P. H. Laufman, W. H. Cronmeyer, Alfred Marshall, D. M. Somers were appointed a committee on credentials. After the minutes of the meeting held in New York on April 29 had been read and accepted, D. M. Somers moved the election of J. W. Britton of Cleveland, Ohio, as chairman for the first year and until his successor is elected. This was unanimously carried. The question of an official name for the association then came up and excited considerable discussion. It was finally decided, on motion of W. C. Cronmeyer, that the association be known as the Tin Plate Manufacturers' Association of the United States. It was decided to have the office of the association located near the residence of the president, which is at Cleveland, Ohio. It was also decided to gather information and statistics on the subject of tin plates, which is expected to be carried on by the members.

Just previous to adjournment the question of adopting the constitution came up, and it was adopted as far as Article 10. It was also decided that the dues of each member be \$50 per year. The hour being 1.30, a motion to adjourn was made and carried, and the association will reconvene at 2.30 p. m.

The Barnett Brass Works are about to remove from Mansfield to Canton, Ohio, where they will be consolidated with their Canton manufactory, the J. H. McClain Machine Company.

The Clark Thread Company of Newark, claim damages to the extent of \$2000 from the county on account of losses caused by riotous strikers.

Washington News.

(From Our Regular Correspondent.)

WASHINGTON, D. C., May 18, 1891.

The series of tests under the auspices of the Bureau of Ordnance of the Navy Department a few weeks since at the Annapolis proving ground is the beginning of what will be made a systematic course of experiments on the quality of plates of American material and manufacture. The most successful experiments hitherto made—that is, before the recent test of 3-inch plates—have been on plates of foreign manufacture treated by foreign and home processes. The idea in Commodore Folger's mind was to get a fair test of the qualities of the best plates then recognized as such of foreign and domestic make as a base of comparison. The 10-inch plate was used and the results were carefully preserved by photography and record. These will serve for comparison in the future experimental work.

In the recent test of 3-inch plates the plates themselves and treatment were American. The results have already been stated in *The Iron Age*. The 21 6-pounder shots fired against the Harvey plate might literally be said not to have made an impression. The face was not dented, and looked as if struck by some soft substance, leaving the marks of dust and minute particles of a crumbled mass. The result was undoubtedly marvelous and exceeded anything accomplished in the tests several months ago.

Commodore Folger has already commenced preparations for another series of tests, which will take place in about two or three months. The next time the plate will be thicker than 3 inches, possibly 10 inches, with heavier projectiles and charges of powder. The Commodore is evidently of the opinion that he is on the line of important developments in armor-plate standards of durability and resistance.

In this age of high-power guns every announcement of improvements is closely watched and investigated. The claims of Robert Wetherill, president of the Standard Steel Works, for a solid metal gun are now attracting attention among ordnance experts of the navy. He sends an account of a 6-inch cast iron open-hearth steel gun which will be tested at Annapolis, which he says will sustain every regulation trial and will outlive any other gun.

This is one of the three high-power rifled cannon 6-inch authorized by Congress, act of March 3, 1881, viz.: One each of Bessemer, open-hearth and crucible steel. The fate of the two of Bessemer and open-hearth is known. The Bessemer went to pieces on a preliminary charge of powder, demonstrating the worthlessness of the claims for that material for a solid gun. The open-hearth stood the test of ten rounds 100-pound projectile velocity 2000 feet per second. It was shown that the qualities of this gun were tensile strength 75,000 pounds to the inch, weight 15,000 pounds. The gauge showed an expansion first test $\frac{1}{16}$ inch at the breech. The remaining tests showed no enlargement.

The new open-hearth gun is said by its designer to be a great improvement particularly owing to facilities for oil tempering. A test will demonstrate the force of his claims. The simplification of gun making with equal durability and power as compared with built up ordnance is one of the mysteries which experiment is expected to unfold.

The patriotic people and the experts of land and marine warfare are still on the anxious bench of expectation and science in view of the pursuit of the Chilean pirate Itata by the new cruiser Charleston. The 8-inch guns she carries are the center of interest

to the naval world in this affair. They weigh each 15,000 pounds, throw a projectile of 250 pounds with 125 pounds of powder, cost about \$15,000 each and required about 75 days in construction. The Esmeralda carries a battery of heavier guns of English pattern. It is not expected, however, that an opportunity to make comparisons with these in actual engagement will occur.

Decision on Cast-Iron Floor Plates.

The United States General Appraisers have rendered the following decision on cast-iron floor plates imported for structural purposes. The collector assessed duty at the rate of $1\frac{1}{2}$ cents per pound. The importers contend that these plates are dutiable at $\frac{1}{2}$ cent per pound. The appraiser says: "Said plates are ribbed iron castings, unquestionably for use in constructing the floors in manufacturing establishments. Such structural forms represent wrought shapes, whereas the goods in question are wholly of cast iron, known as cast-iron plates, 3 feet square, $\frac{1}{2}$ inch thick, with right-angle ribs." Accompanying the papers in the case is an affidavit from the appellants that the plates in question were designed and used for construction purposes only.

We find that the merchandise is cast iron, is known as cast-iron floor plates, and was used in the construction of a drying room in a manufacturing establishment, having been laid upon a brick flooring, which it entirely covered. The two paragraphs of the tariff act bearing upon the subject are as follows:

Par. 137. Beams, girders, joists, angles, channels, car truck channels, T columns and posts, or parts or sections of columns and posts, deck and bulb beams, and building forms, together with all other structural shapes of iron or steel, whether plain or punched, or fitted for use, nine-tenths of one cent per pound.

Par. 161. Cast-iron vessels, plates, stove plates, andirons, sad-irons, tailors' irons, hatters' irons, and castings of iron not specially provided for in this act, one and two-tenths cents per pound.

Neither the law nor trade usage require that all the articles included shall be made of wrought or forged iron or steel. Certain of them may be, and in instances are, made from cast iron or steel. The fact, therefore, that the plates in dispute are of cast iron does not in itself operate to exclude them from classification under that paragraph. Neither do the facts, 1, that they are in a certain sense "structural shapes," and, 2, were used in the construction of a building, entitle them to classification thereunder. They are, in our opinion, positively excluded from such classification, 1, because they do not belong to the same general class and kind of articles mentioned and included in that paragraph; are not such "building forms" or "structural shapes" as are therein named and contemplated, and, 2, for the reason that they are specifically provided for as "cast iron . . . plates."

The claim of the appellants is rejected.

Prominent manufacturers of Akron and Canton, Ohio, have been considering for some time the establishment of a malleable-iron works in the former city. It is now definitely announced that the plans have been arranged, and that the formal organization of the company will take place in a few days. It is the intention to erect a large plant to employ about 600 hands.

G. F. Hoar, Francis A. Harrington, Charles H. Morgan and P. Emory Aldrich, a committee of trustees of the Worcester Polytechnic Institute, have issued an appeal to the citizens of that town to raise money for a new shop for a trade school.

W. E. Perry of Henry R. Worthington is abroad.

Cleveland-Iron Cliffs Consolidation.

Two of the largest mining companies of Cleveland have decided to consolidate. The stockholders in both are largely identical, and the conclusion has been reached that it will be to the advantage of all concerned to simplify matters by merging both companies into a new corporation. The two companies are the Cleveland Iron Mining Company and the Iron Cliffs Iron Company. The former were organized in 1849 by Cleveland men, and shipped the first load of ore from the Lake Superior districts. The Iron Cliffs Company were organized in 1864, the stockholders being nearly all New York men. Samuel J. Tilden was at one time its president, as was also W. H. Barnum, his friend. The greater part of the stock was transferred in February, 1890, by means of trustee certificates, to a syndicate of prominent Cleveland gentlemen, among whom were J. H. Wade, J. H. Wade, Jr., Samuel L. Mather, Selah Chamberlain, J. V. Painter, Hon. Amos Townsend, Samuel Mather, W. G. Mather, A. A. Pope and E. R. Perkins. The stock is quoted at \$125, asked on \$50 shares, but this quotation has held for some time, the stock remaining in two large blocks, one held by the syndicate and the other by the Tilden and Ogden estates in New York.

The mines are located at Ishpeming, the lands adjoining, and all being within a radius of 3 miles. Last year the total output of the mines was 640,000 tons of ore. The new company intend to develop the mineral lands as it becomes advisable, but will do little this season because of the stagnation in the ore trade. As soon as the deal now in operation is completed the stockholders will meet and choose their directors and officers. William G. Mather, who is the vice-president of both companies, says the meeting will probably occur early in June.

The circular presenting the plan to the stockholders of both companies will probably explain the transaction in a clear light:

Circular of the Trustees.

CLEVELAND, Ohio, May 1, 1891.

To the Stockholders of the Cleveland Iron Mining Company, and to Holders of Trustee Certificates for Iron Cliffs Company Stock:

GENTLEMEN.—The trustees holding the legal title to the 14,005 shares of capital stock of the Iron Cliffs Company, purchased by syndicate in February, 1891 (which syndicate all the stockholders of the Cleveland Iron Mining Company were offered an opportunity of joining), under the powers conferred upon them by the trust and subscription agreements, and with the approval of the subscribers owning a majority interest therein, and also with the consent of those owning a large majority of the stock of the Cleveland Iron Mining Company, have perfected the following plan for the combination of the two companies, which plan has greater advantages than a consolidation, under the Michigan law.

A corporation is now being organized under the laws of the State of West Virginia, to be known as the Cleveland-Cliffs Iron Company, with a capital of \$5,000,000, divided into 50,000 shares of \$100 each. The stock of the Iron Cliffs Company held by the trustees will be transferred to the new company, and one and one-fourth shares of their stock, full paid and non-assessable, will be issued in exchange for each share of the Iron Cliffs stock, to be distributed among the holders of trustee certificates, on the surrender of such certificates—that is to say, the Iron Cliffs stock will be exchanged on a basis of \$125 per share for the stock of the new company at par, being a total valuation of \$2,500,000 for the entire stock of the Iron Cliffs Company.

Stockholders owning a large majority of the stock of the Cleveland Iron Mining Company have already agreed to transfer their stock to the treasury of the new company, on a basis of \$30 per share, and to receive in exchange therefor the stock of the new company at par; that is to say, for each five shares of the stock

of the Cleveland Iron Mining Company so transferred one share of the new stock, full paid and non-assessable, will be issued, making a total valuation of \$2,000,000 for the entire stock of the Cleveland Iron Mining Company. An opportunity is hereby given to all other stockholders of the Cleveland Iron Mining Company to exchange their stock for the stock of the new company on precisely the same terms.

The Cleveland Iron Mining Company and the Iron Cliffs Company will not be dissolved, but as the stock of each will be owned by the new company, their capital stock will represent the stock of the two constituent companies, transferred to their treasury, and the respective values of \$125 per share for the Iron Cliffs and \$20 per share for the Cleveland are adopted as equitable, for the reason that they were the market values of those stocks at the date when the purchase of the Iron Cliffs stock was made. Such an arrangement will insure the joint and harmonious working of the contiguous properties of the two constituent companies, and will inure to their mutual advantage in many ways, chiefly in the saving of the administrative expenses, in the elimination of competition, in advantages in purchasing supplies and in transactions with railroads and other transportation companies, a large corporation, in these days of consolidations, having more power and influence than a small one.

For your information we would state that the Iron Cliffs Company have ore-producing mines, and also a large undeveloped acreage in the mineral belt, and in the year 1890 they produced from their mines 295,000 tons of iron ore, and from their furnaces 25,000 tons of charcoal pig iron, and made a net profit.

The acquisition of the entire capital stocks of the two companies by the new company will require \$4,500,000 of their stock at par, thus leaving unissued \$500,000 in their treasury, which will enable them to acquire other property and engage in other enterprises, favorable opportunities having already presented themselves.

In addition to the above advantages, the new company will have much more liberal corporate powers and greater facilities than are now possessed by either of the constituent companies, and it is therefore expected that their stock can be made more valuable and profitable than that of either of the other companies under the present organization; and that through their cash receipts, obtained from dividends on the stock in their treasury, and from their other earnings and resources, a surplus can be accumulated which will enable them to pay a regular quarterly dividend on their stock, thus giving it a stable value in the market, independent of any temporary depression in the iron trade.

As it would be inequitable to make this change of stock, at the above figures, after the stock of the new company has enhanced in value, this opportunity for transfer will not be held open later than May 25, 1891.

E. R. PERKINS,
J. H. WADE, JR.,
WILLIAM G. MATHER,
Trustees.

The circular is accompanied by a letter from T. P. Handy, E. R. Perkins, Samuel Mather, Peter White, J. H. Wade, Jr., William G. Mather and E. R. Perkins, executor for the estate of Selah Chamberlain, in which approval is given to the plan and it is recommended that the stockholders of the Cleveland send their stock for exchange. These gentlemen are all heavy owners of Cleveland stock. In fact, W. J. Gordon and the Hales of Cleveland seem to be the only other holders of any large quantities of the stock whose names do not appear in the letter of recommendation.

OBITUARY.

JED HOTCHKISS.

Major Jed Hotchkiss of Staunton, Va., who was closely identified with the development of the coal and iron resources of his native State, died recently. Major Hotchkiss, better than any one geologist, was familiar with the country whose enthusiastic champion he was. He was a prominent member of the American institute of Mining Engineers, and during the last years of his life was successfully interested in the building of industrial towns.

CHARLES G. ELLIS.

Hon. Charles G. Ellis, president of the Schenectady Locomotive Works, Schenectady, N. Y., died at his home in that city on Friday, May 15, after an illness of one day of acute congestion of the lungs, aggravated by heart trouble. Mr. Ellis became president of the Schenectady Locomotive Works in 1883, and to his management and skill is largely due the growth and magnitude of the industry. In 1868 Mr. Ellis was elected to the State Assembly by an overwhelming majority, and he has always been a prominent figure in the city and county government of Schenectady. Mr. Ellis was 48 years of age, and is survived by his wife and daughter.

The death is announced of Irvin Reed, senior member of the Hardware firm of Irvin Reed & Son, Richmond, Ind., on Saturday, April 25, at his home in that city. The firm of which Mr. Reed was founder has been in existence since 1857, and he was thus well known to the trade, among whom he had many warm friends, who have learned of his death with much regret.

Chimney Climbing.

In chimney climbing, as in most other things, the old order changes. Time was when the dexterous flying of kites was the initial step in the ascent of a chimney or a church steeple. In addition to the cord by which it was flown, the kite was furnished with a second cord, which hung down vertically. The manipulators of the kite having, to the best of their judgment, got it directly over the apex of the chimney, both cords were steadily hauled upon, and in that way a thin line of communication was established. To one end of that line a rope was fastened, and this in turn was drawn over the steeple. Then to the rope was attached a light chain with a pulley block and tackle affixed. The block was hauled up to the top, and by means of the pulley and tackle the steeple-jack, seated in a "bo'sun's chair," made his perilous ascent. Between this time-honored method and that by which Vauxhall chimney, in Liverpool, has recently been climbed, there is a wide gulf fixed, the difference representing an immeasurable increase both of security and of facility for carrying on what repairing work may have to be done. By a system equally ingenious and simple a ladder is run up outside the chimney at a uniform distance of 2 feet 6 inches from its face, to which it is pinned at regular intervals of 6 feet by firm iron brackets. The climber, mounting the inner side of the ladder, thus makes his ascent within a kind of skeleton cage. While, therefore, the element of risk is not removed, it is greatly lessened. A false step would precipitate him to the earth, but he is less likely to make it, in that the liability to become dazed is greatly diminished by the sense of security afforded. What is to be guarded against in chimney climbing is a failure of nerve, and this end is clearly to be attained in proportion as the conditions of the ascent are rendered to the eye less fearful.

Vauxhall chimney—a giant among its neighbors—extends aloft to a height of 310 feet. The elevation of its site above the Old Dock sill is 70 feet. The total height of the chimney, therefore, above that well-known datum is 380 feet. Everton Church—the highest point of Liverpool—is 250 feet above the Old Dock sill. The elevation of the monument in London is only 202 feet. Sightseers privileged to ascend the Vauxhall chimney would have the advantage of an additional 108 feet.

The apparatus has been fixed by W. J. Whitehead of Red Rock street, a man young in years, but of ample experience as a "steeple jack," and in conversation with him some interesting facts concerning chimney and steeple climbing may be gathered. The system he adopts has now

been employed on many occasions, and is probably, says the *Liverpool Post*, taken all round, the best yet invented. Each ladder is 12 feet in length, and is furnished with four iron arms for attachment to the wall. The process of fixing is extraordinarily rapid. The whole height of Vauxhall chimney was scaled in something less than six hours, although two separate days were taken for the purpose, inasmuch as after a considerable elevation had been attained the first day the wind became so strong as to render further work dangerous. The process of fixing is after this fashion: Four iron sockets are driven into the base of the chimney and to these the first ladder is attached by means of its arms. Mounting the ladder so fixed, the operator places a plank across the upper pair of arms, and thus provides himself with a small platform upon which he can stand. He then drives in the sockets for the next ladder, hoists it up and fits it in its position. This ladder, being in its turn made secure, becomes the base of operations for the next, and so the work is carried to the top, the whole, when completed, being a structure of remarkable rigidity. Its qualities, indeed, in this regard are said to be phenomenal. It is claimed that each ladder of itself is pinned so securely to the wall that in case of need—that is, in the event of tackling an exceptionally high chimney, or of a dearth of plant—the ladders can be successively detached from below and used to continue the ascent above.

The prime reason for climbing Vauxhall chimney on the present occasion is to repair the lightning conductor. A steeple jack, however, is frequently called upon to perform much more difficult work. Chimneys are frequently increased in height. Huge blocks of stone and iron have to be manipulated. Scaffolds have to be constructed for the purpose, and herein lies, perhaps, the most risky portion of the undertaking. It is easy to build a scaffold springing from the solid basis of mother earth; a vastly different undertaking is it to play topsy-turvy with the laws of gravity, and construct one from the top downward. The task demands not only nerve, but a knowledge of mechanics and engineering. It is accomplished, however, despite all obstacles, not forgetting the primary one, that every batten, plank and pole employed has to be hauled up to the summit and handled with most gingerly care. Mr. Whitehead's highest climb hitherto has been a chimney at the Runcorn Soap and Alkali Company's works, at Weston, the height of which is 330 feet. Mr. Whitehead confesses to a full sense of the dangers that are run, but is thankful that hitherto his nerve has never failed him, and he has met with no accident. They are odd experiences that he has up in the clouds. A high wind, it appears, will cause a tall chimney like Vauxhall not merely to vibrate at the top, but actually to swing over a space of 6 or 8 inches, and this without any impairing of its stability. Of course at such times remaining at the top is out of the question. Wind is an invariable danger. A calm day is a *sine qua non* for the work; and meteorologists may, perhaps, be interested to know that if they suppose the wind at an elevation of 300 feet to be steadier than at the surface level, they are mistaken. It is both more gusty in its character and more variable in its direction.

The Montgomery Iron Works of Montgomery, Ala., manufacturers of engines, saw mills and cane mills, have opened an office and salesrooms at 130 Commerce street, Montgomery.

The Iowa Iron Works of Dubuque, Iowa, have under consideration a generous offer to locate at St. Louis, Mo. A cash inducement and a manufacturing plant much larger than the company now occupy have been offered, and will probably be accepted.

MANUFACTURING.

Iron and Steel.

The American Tube and Iron Company of Middletown, Pa., have been awarded the contract for the pipe to be used in laying the natural-gas line in Toledo, Ohio, and a large output of 6-inch, 8-inch, 10-inch, 12-inch, 14-inch and 16-inch pipe will be necessary. The competition between the cast-iron pipe manufacturers and the wrought-iron pipe manufacturers was very sharp, but the trustee of the city of Toledo Natural Gas Department decided to adopt wrought iron pipe, as against cast iron, notwithstanding the cost of the former is much in excess of the latter. The well-known Matheson joint will be used in the construction of the line.

The Pittsburgh Malleable Iron Company have purchased a site of land in that city, and contemplate the erection of suitable buildings of iron and brick in the near future. The works of the firm are again in operation, having gotten under way about two weeks ago after the recent fire. They are employing 100 men, and report business as very fair, with a promising outlook.

Lucy Furnace, No. 1, of Carnegie, Phipps & Co., Limited, at Pittsburgh, which has been idle for some time on account of a scarcity in coke, resumed blast on Thursday, the 14th inst. Lucy Furnace No. 2, which is now idle for the same cause, will resume blast as soon as a sufficient supply of coke is assured to keep both furnaces running.

Cartwright, McCurdy & Co., proprietors of the Enterprise Rolling Mill, at Youngstown, Ohio, have recently increased their capital stock from \$330,000 to \$640,000. This firm have recently made extensive improvements at their plants.

The iron furnace building at Bristol, Tenn., by the Bristol steel and Iron Company, will be 75 feet high and 17 feet in diameter, and equipped with three Whitwell hot-blast stoves, 75 x 20 feet. The casthouse is 60 x 175 feet and the engine house 40 x 60, the former of iron and the latter built of stone. The boiler house will contain 16 boilers 54 inches in diameter and 30 feet long. The plant is expected to be completed by June 15.

The Pencoyd Iron Works, at Pencoyd, Philadelphia, Pa., which have been the subject of a strike for some time, are gradually resuming operations in all departments, and the strike is apparently lost to the men who inaugurated it.

The new charcoal furnace at Rockdale, Tenn., on the Louisville and Nashville branch railroad from Columbia, Tenn., has been leased and put in operation as a coke furnace by Ohio and Nashville parties, who have formed the King Furnace Company. The officers are R. N. King, president, Dayton, Ohio; Walter W. Smith of Smith & Vale, vice-president and treasurer, Dayton, Ohio; Col. Thomas Sharp, secretary and general manager, Nashville, Tenn., and S. A. Short, superintendent.

The Licking Furnace, at Newport, Ky., has been purchased by the Globe Corrugating Company of Cincinnati, Ohio, and will operate the same.

The Trussville Furnace, at Trussville, Ala., recently purchased by Gilreath, Hardie & Spencer, has blown in after completing repairs.

J. D. Kase of Danville, Pa., has been appointed manager of the North Carolina Steel and Iron Company, at Greensboro, N. C., and has been authorized by the company to construct a 100-ton iron furnace.

The Lackawanna Iron and Steel Company, at Scranton, Pa., is erecting a new pattern shop, which it is expected will be completed in September. It will be a brick structure 113 x 53 feet, two stories high. The old pattern shop will be removed and the machine shops extended.

The furnace of the Dunbar Furnace Company, at Dunbar, Pa., blew in on the 14th inst., after a shut-down of nine weeks. The furnace will draw its supply of coke from the company's plant at Ferguson, which is being worked in full on the Frick scale. It is said that the men will resume work at a 10 per cent. reduction.

The Kilmer Mfg. Company of Newburgh, N. Y., with branch house at 543 and 545 State street, Chicago, Ill., are about to increase their galvanizing capacity and nail plant by utilizing the water power of Quassaick creek. Their works are built upon the bank of this creek, which will give them about 250-horse-power at a nominal expense. When this has been done, their nail capacity will be 12,500 kegs per month. Beginning July 1 they will run their rod mill double turn.

The East Lebanon Iron Company, capitalized at \$100,000, has been chartered. The company will erect works at East Lebanon, Pa.

The Charleston Iron and Furnace Company is the name of a newly incorporated concern at Charleston, W. Va. The purpose of the company is to deal in iron and mineral paint, and the authorized capital stock is \$1,000,000.

The long drawn out litigation in regard to the iron plant of Brown, Bonnell & Co., at Youngstown, Ohio, is not yet ended. Recent advices from that city state that the Supreme Court has rendered a decision in the matter. The Circuit Court rendered a judgment in favor of the creditors, confirming the sale to the purchasers. Henry Crawford, representing himself and Herbert C. Ayer, filed an appeal to the Supreme Court, alleging that the property was worth more than it sold for, and that one of the appraisers was related to a creditor. The creditors filed a motion asking that the appeal be dismissed, which the Supreme Court has refused to entertain, stating that it desired to hear the appeal on its merits. In the meantime the large plant is being successfully operated by the receiver, Fayette Brown of Cleveland, Ohio.

Machinery.

On June 3 next application will be made to the Governor of Pennsylvania for a charter for an intended corporation to be known as the R. D. Nuttall Company. The company intend to manufacture machines and machinery of all kinds. Those interested in the new enterprise are R. D. Nuttall, Thos. L. Shield, F. E. Canon, Jno. Jackson and O. F. Richardson.

The plant of the Standard Boiler and Bridge Company at Bellaire, Ohio, is about completed, the machinery nearly all being placed and the firm expect to commence operations by June 6. A few property owners adjacent to the plant served a notice on the firm to the effect that they would be held responsible for all damages done to their property, and a petition was filed in the courts to enjoin them from erecting their plant. The court refused to grant the petition, however, and there was no interruption of operations in the construction of the plant.

The Common Sense Engine Company of Springfield, Ohio, have just completed the purchase of the business of the late Beedle-Kelly Company of Troy, Ohio, including their entire line of horse racks, corn drills, land rollers, listers, &c., which they will place on the market at once, with new and improved devices on each.

Ritter & Conley, of Pittsburgh, have under construction seven large boilers for a large steel plant now being built at West Superior, Wis., by the Pittsburgh Iron and Steel Engineering Company of Pittsburgh. The boilers are known as the submerged flue boilers, and are 10 feet in diameter by 30 feet long, and made of 1-inch best fire box and extra flange steel. Each boiler contains 236 4-inch flues, 20 feet long. These boilers are built for a working pressure of 150 pounds per square inch, and are said to be the heaviest boilers ever constructed in Pittsburgh. They will weigh, when finished, 40 tons each, and will be transported to their destination in cars especially built for the purpose.

The Shaw Electric Crane Company of Muskegon, Mich., have completed plans for a new plant. The works will be extensive and modern in construction, and will be equipped with \$40,000 worth of new machinery.

The new three-story building of the Muskegon Machine and Foundry Company, at Muskegon, Mich., is nearing completion, and work is soon to begin on the foundry for gray iron castings. This building will be 200 x 90 feet, while the power house, work on which will begin as soon as the three 100-horse-power boilers are in place, will be 120 x 50 feet, two stories high.

The Muskegon, Mich., Malleable Iron Works are building a structure 220 x 90 feet in size.

The erection of a foundry and machine shop is contemplated by Lewis Miller at Chester, Pa.

The Douglas Foundry at Chateaugay, N. Y., has been completely wiped out by fire, at a loss of \$75,000.

The Southern Machinery Company at Atlanta, Ga., have been placed in the hands of a receiver.

A corporation, to be known as the Malden Machine Company, have been organized at Portland, Maine, with a capital stock of \$100,000, for the purpose of manufacturing machinery. The officers are: President, F. W. Sawyer of Malden, Mass.; treasurer, Charles T. Small of Providence, R. I.

The Davis & Furber Machine Company's Foundry, North Andover, Mass., is being enlarged.

The Russell Wheel and Foundry Company of Detroit, Mich., will build an entirely new plant, with increased capacity and better shipping facilities than offered by the present works.

Plans are being made for the new needle factory of E. & J. W. Lathrop, Worcester, Mass. The main building will be 108 x 25 feet, and will be used for the manufacture of hook needles, &c.

The repair and machine shops of the Santa Fé Railroad, at Galveston, Texas, together with four locomotives and seven passenger coaches, have been destroyed by fire. The loss is placed at \$85,000, fully covered by insurance.

The Chapman Valve Mfg. Company of Indian Orchard, Mass., which completed a large addition to their plant only a few weeks ago, are once more talking of enlarging, this time their pattern department being the one considered. It is proposed to build a brick story, 100 x 40 feet in size, on top of the present pattern building, which extra space would be devoted to this department. The work will probably be done this summer.

The new stove company recently organized at Bangor, Maine, will be known as the Noyes & Nutting Mfg. Company, with F. C. Noyes as president; capital, \$50,000. Work on the building has been commenced, and the equipment will be pushed forward with the intention of having the concern running by September.

The Boston office of Westinghouse, Church, Kerr & Co. reports business as active. Their recent sales of the larger sizes of Westinghouse engines include one 250 horse-power compound to the Fairchild Paper Company; one 100 horse-power to Frank Jones, president of the B. and M. R. R.; two 75 horse-power to the Olcott Falls Paper Company; three 80 horse-power compounds to Howland & Ellis, for an electric railway in Burlington, Iowa, and five 5 horse-power, six 10 horse-power, four 15 horse-power, one 25 horse-power, one 35 horse-power, one 45 horse-power, one 60 horse-power, one 100 horse-power, one 125 horse-power, two 150 horse-power, and one 200 horse-power, for a complete subdivided power plant in the Bleachery and Print Works of the Dunnell Mfg. Company, at Pawtucket. They are meeting an active demand for their new specialty, known as the steam loop, having entered orders for a large number of systems from the Dunnell Mfg. Company; Flint and Pocasset Mills, at Fall River; Forest Paper Company of Yarmouthville, Maine; the Grosvenor Dale and Peace Dale Mills; Woonsocket Rubber Company, and others.

The Rarig Foundry, at Buena Vista, Va. has successfully made its first cast.

The Steam Coil and Pipe Heating Company have been incorporated at Baltimore, Md., with a capital stock of \$250,000, to manufacture machines for cleansing coils and pipes.

Hardware.

Ten Broeck & Boynton, Troy, N. Y., who have been running a pattern workshop for the past three months, have just started a brass foundry business.

Erie Wringer Mfg. Company, Pittsburgh, Pa., advise us that they shipped to China last month 20 dozen wringers, and have received an order from the same part of the world for 80 dozen more, which they are now getting out.

The Keene Mfg. Company, makers of Whelpley's patent skates, curry combs, &c., Keene, N. H., have decided to remove their business to Marlborough, N. H., where they have secured the factory formerly occupied by the Thurston Mfg. Company. The company will set up their machinery and begin business at an early day. The main shop is three stories high, including the basement, and is built in the form of a right angle, each wing measuring 72 x 37 feet. While the factory will be removed as stated, the company will, we are advised, still retain their office and post-office address in Keene, as heretofore.

The Akron Hardware Company, Akron, Ohio, have made arrangements to build a new factory in South Akron. The company will increase their capital and capacity, and we are advised that the works will be built to apply directly to their line of goods, making it possible for them to produce better goods at a less cost. The catalogue of the company, while incomplete, illustrates the general line of metal and crystal rosettes and specialties in harness and carriage hardware which they are manufacturing.

The Morris Hardware Company of Youngstown, Ohio, are at work on an addition to the already large store. The new addition is 45

90 feet in size, fronting on Public Square, in that city, and will cost, when completed, exclusive of the real estate, \$25,000. This addition will give the Morris Hardware Company a store room fronting on both Federal street and Public square, four floors, 45 x 190 feet in size, with two Marshall power elevators, and will be not only one of the largest hardware stores, but one of the most complete in its arrangement of any similar concern in the country.

The newly organized New Philadelphia Wire and Nail Company are erecting a plant at New Philadelphia, Ohio, which they expect to have in operation by the middle of August. The plant will cover about 5 acres of ground, the main building being a two-story brick structure 252 x 24 feet, with two side wings. Power will be furnished by two engines of 100 and 250 horse-power each respectively. The product of the works will be all kinds of steel wire nails, and about 150 hands will be employed.

Ludlow-Saylor Wire Company, St. Louis, Mo., manufacturers of all descriptions of wrought iron, brass and copper work, report a lively demand for their specialties in this line. Prominent among the contracts recently secured by them they mention the new Chemical Bank, St. Louis, which will open for business June 1. This contract calls for counter railings, inside cages for tellers, clerks, &c.; doors, and, in fact, all the inside metal work. The work will be of brass, finished with oxidized copper, and will be made from original drawings submitted by Ludlow-Saylor Wire Company. The work will be first class in every respect, and the contract will run over \$2000.

The Standard Emery Wheel Company, Albany, N. Y., whose factory was destroyed by fire some time since, are again in operation. Their new buildings cover 70 feet frontage by 125 feet deep, four floors and basement, with yard room in addition. The machinery is all new and a good deal of it, we are advised, of a special nature, constructed in the light of experience and study. In their grinding wheel department the company give special attention to the manufacture of large and fast-cutting wheels such as are used in plow and agricultural machinery works, stove foundries, malleable iron and agricultural iron works, &c. They state that they are the exclusive manufacturers of patent paper polishing wheels, and in addition manufacture solid leather and wood leather covered polishing wheels and all grades of wool felt buffs. The company are also wholesale dealers in Turkish emery, nickel anodes and salts and nickel platers' supplies. The catalogues representing the goods put on the market by the company were all destroyed in the fire, but new ones are now in the printers' hands and will be soon ready for distribution.

Miscellaneous.

D. R. Lean, engineer and contractor of Pittsburgh, Pa., has been appointed representative in the United States for the Dunnachie Composite Regenerative Gas Kiln, for burning fire and red bricks, terra cotta ware, &c. This is a patent belonging to James Dunnachie, managing director of the Glenboig Union Fire Clay Company, Limited, of Glasgow, Scotland. These kilns are now in use at Harbison & Walker's, Pittsburgh, and at the plant of the Perth Amboy Terra Cotta Company, Perth Amboy, N. J., and they are about to be built at several other large brick works in the United States.

It is announced that a steel car works plant, now located at Boston, Mass., is to be removed to Watauga, Tenn.

Ohio parties have leased the Anniston Pipe Works, at Anniston, Ala., and will operate the same at once.

The John Stephenson Company, car builders, of East Twenty-seventh street, New York, have purchased the property known as the Burnie Farm, between Larchmont and Mamaroneck, on the New Haven Railroad, and will erect extensive car works on it. The property comprises about 35 acres. It is the intention of the company to begin at once to prepare the ground for the erection of the buildings. The new works will probably be the largest and finest in the country. The company expect to have the new factory working inside of two years.

The Parlin & Orendorff Company, of Canton, Ill., are preparing to increase the capacity of their factories about one-third. They will put in a Hamilton Corliss engine of 500 horse-power and a battery of four new boilers. They have also ordered a large amount of iron-working machinery for the new addition. They report a very satisfactory volume of business during the season.

The Barney-Smith Mfg. Company, of Dayton, Ohio, manufacturers of rolling stock for railroads, are building two first-class coaches

for the Pittsburgh, Shenango and Lake Erie Railroad. These will be equipped with the well-known Scarlett seats.

The S. J. McCormick Company, of Pittsburgh, have been granted a charter, with a capital of \$50,000. The company proposes to manufacture foundry facings and mill supplies. The directors are Jno. S. McCormick, Frederick S. Hann of Pittsburgh and M. Hawley Treadwell of New York City.

Ground for the erection of the new zinc works at Shimersville, Pa., was broken last week. The new furnaces will be built under the immediate direction of Grillo and Reinhardt, two experts from Germany, and will be altogether different from any now in operation in this country. For a start the works will not be very extensive, but it is proposed to add to them as the demand for their product increases.

Walter and John J. Moore have incorporated the Rock Creek Coal and Coke Company, with a capital stock of \$250,000. The principal place of business will be Birmingham, Ala., near which the mines of the company are located.

The Rolled-Steel Wheel Company of Pittsburgh, Pa., propose to erect a manufacturing plant at Kensington, on the Allegheny River, near Parnassus, Pa. The concern have a capital of \$600,000, and will manufacture vehicle wheels of all kinds, non-corrosive boiler tubes and stairway and balcony railings. Ground has been broken for the plant, and the work will be rapidly pushed.

The new buildings for the Baltimore Electric Refining Company, at Baltimore, Md., will be made of iron designed and built by the Berlin Iron Bridge Company of East Berlin, Conn. The rolling mill will be 56 feet in width by 180 feet in length. The refinery building will be 130 feet in width by 80 feet long, and the boiler house will be 49 feet in width by 50 feet long. The buildings will be entirely of iron, no wood work being used about the construction in any way.

The Enterprise Coal and Coke Company have been incorporated at Charleston, W. Va., with a capital stock of \$100,000, with the privilege of increasing it to \$500,000. Principal office will be in the above named city. The incorporators are John W. Beals of Brookline, Mass.; J. Whitney Beals, Jr., Edward W. Gilbert and D. P. Bosworth of Boston and Chas. W. Pratt of New York.

The Crescent Phosphor Bronze Metal Company have recently established themselves at 811-815 Fairmount avenue, Philadelphia. They manufacture phosphor tin, phosphor bronze, phosphor copper, manganese bronze, for all of which very high claims are made.

PERSONAL.

Hon. Abram S. Hewitt of Cooper, Hewitt & Co. has sailed for Europe. He will be absent a few months.

Jos. D. Weeks of Pittsburgh has gone to the Pacific Coast in the interest of the Census.

W. H. Harvey, the inventor of the Harvey process of treating steel, has gone abroad.

F. S. Witherbee of Port Henry, N. Y., was present at the meeting of the Iron and Steel Institute at London.

Andrew Carnegie has sailed for Europe.

F. Baackes, general manager of the Salem Wire Nail Company, has been spending the past month in Europe. A recent letter from him states that he has had a most enjoyable trip, and that the brief respite he has had from the cares of business has been of great personal benefit. He was then at Cologne, and hoped to be back not far from June 1.

An adjourned meeting of the stockholders of the Westinghouse Electric and Mfg. Company of Pittsburgh was held in the Westinghouse Building in that city on Monday, the 18th inst. George Westinghouse, president of the company, occupied the chair. After the meeting was called to order Mr. Westinghouse said: "We will have to adjourn until the Reorganization Committee has received a sufficient

amount of the surrendered stock to warrant it announcing the organization is effected. I hope and believe we will be ready by June 1, and will ask an adjournment till that date." A motion to adjourn to the date was carried. In an interview after the adjournment of the meeting Mr. Westinghouse made the following statement as to how the reorganization plan by which the stockholders were to return 40 per cent. of their common stock had been received: "I am much gratified at the success the plan has already reached. Already 50,000 shares have been surrendered, and there is no doubt about the success of the plan. Some of the stockholders are a little slow, and this is only delaying the speedy reorganization. There should be unanimity about this matter, but I believe the Reorganization Committee will feel warranted in announcing the plan assented to when nine-tenths of the stock has been surrendered. If there is not sufficient stock surrendered by June 1 we will have to adjourn again, but I hope we will be all ready then. This will also be our meeting for the election of directors."

The Madison Car Works.

The Madison Car Company's new works, at Madison, Ill., are rapidly taking shape, and the visitor to this promising industrial town can now form some idea of the great size of its leading establishment. The buildings are being erected in the most substantial manner, with brick walls and slate roofs, and are arranged in such relations with one another that all materials can be handled with the greatest possible economy of labor. The foundry is practically completed. It is 650 feet long by 125 feet wide, and is supplied with two cupolas for car wheels and one cupola for soft castings. It will very shortly be started up on castings. Parallel with the foundry is the building to be used as a blacksmith and machine shop. This structure is 750 feet long by 100 feet wide. Also parallel with these buildings is a still larger building, 925 feet long by 160 feet wide, which is to be used as a wood-working and erecting shop. These structures are to be equipped with machinery of the most modern and approved type. Railroad tracks run down the centre of the shops and turntables are so arranged that materials can be quickly and easily transferred from one building to another. Cars laden with material can be taken into the buildings and unloaded at the machines where the material is to be worked.

A very comprehensive system of railroad tracks has been laid out through the company's yard. They now have 6½ miles of 60-pound steel railroad track and will have eight by the time their plans are completed. A locomotive has been ordered for yard service from the Baldwin Locomotive Works. Owning 50 acres of ground, the company have ample room for all their operations. Their lumber yard now contains over 1,000,000 feet of lumber. The location of the plant is excellent in every way. The town lies at the east end of the new Merchants' Bridge, which crosses the Mississippi River at the northern end of St. Louis, and has railroad connections with all the roads entering that city, while it is free from heavy terminal charges. It is within easy reach of Southern pine and Missouri hard-wood lumber, is close to the Southern pig iron districts, and has a large market at its doors for its products. The capacity of the car works is 40 freight cars per day, while they can repair from 100 to 200 cars per day. They will be put in operation by the middle of August. The capital of the company is now \$500,000, but they propose to increase it to \$750,000.

TRADE REPORT.

Chicago.

(By Telegraph.)

Office of The Iron Age, 50 Dearborn street,
CHICAGO, May 20, 1891.

The activity reported last week has continued and there is plenty of business in sight, except in lines closely connected with railroad interests, in which buying is deferred. Some disturbing influences have developed quite recently, which may interfere with trade in the Northwest to some extent. Among these are coal miners' strikes, which are felt most severely in Iowa, and will soon cause much inconvenience if not settled. The strikes in the building trades in Milwaukee and other Northwestern cities have already checked important building enterprises and the unusually cold weather of the past week has not only retarded the growth of vegetation, but in many instances caused great damage by heavy frosts. In this immediate locality business is very encouraging. An order for 50 Locomotives will be placed this week by the South Side Elevated Railway, and the building interests are very active.

Pig Iron.—This week has been most eventful to sellers of Lake Superior Charcoal; transactions are estimated to have exceeded 30,000 tons, of which 20,000 were taken by the Malleable Iron Syndicate, for delivery at various Western points. More could have been sold if the furnace companies had been willing to duplicate orders entered a week or two previously; but all of them advanced quotations, and not a few have withdrawn from the market entirely, in the belief that they will be able to realize a better price for the balance of their output as the year passes. The sales made were on a basis of \$17 @ \$17.25, but several transactions are reported at outside points at the equivalent of over \$18, Chicago. A limited quantity can yet be had at \$17, but it is asserted that this is only for prompt shipment, and that buyers who want scattered deliveries will be obliged to pay more money. Coke iron has been fairly active, but the volume of business was somewhat below that of the previous week. One of the largest sales reported was 5000 tons Southern Gray Forge at \$14.25, for delivery in June, July and August. Round lots of local Coke Iron have been sold, and manufacturers are now so well supplied with orders that they are endeavoring to advance prices. Competition between Northern and Southern Iron is quite fierce, however, and foundrymen whose trade is desirable have been able to secure some very low figures from the leading sellers on both sides. We quote for cash, f.o.b. Chicago:

Lake Superior Charcoal.....	\$17.00 @ \$18.00
Local Coke Foundry, No. 1.....	15.50 @ 16.00
Local Coke Foundry, No. 2.....	15.00 @ 15.50
Local Coke Foundry, No. 3.....	14.50 @ 15.00
Local Scotch.....	16.00 @ 16.50
Ohio Strong Softeners.....	18.00 @ 18.50
Southern Coke, No. 1.....	16.00 @ 16.50
Southern Coke, No. 2.....	15.50 @ 15.75
Southern Coke, No. 3.....	14.75 @ 15.00
Southern, No. 1, Soft.....	15.25 @ 15.50
Southern, No. 2, Soft.....	14.25 @ 14.50
Southern Gray Forge.....	13.00 @ 14.50
Tennessee Charcoal, No. 1.....	18.00 @ 18.50
Alabama Car Wheel.....	22.50 @ 23.50
Coke Bessemer.....	17.50 @ 18.00
Hocking Valley, No. 1.....	17.00 @ 18.50

Bar Iron.—Manufacturers report a continuous stream of inquiries, covering lots of all sizes from carloads to 1000 tons. Quite a good proportion of the inquiries have developed into actual orders, but buyers generally are loth to pay the prices now asked, or else they seek to place contracts for delivery in the fall months at current rates, which the manufacturers refuse to entertain. The bottom rate for mill lots

at Chicago is 1.65¢, half extras, but 1.70¢ is asked for small lots and future deliveries. Jobbers have not advanced prices for Iron from stock, although many of them had expected to do so this week.

Other Manufactured Iron.—A great deal of business is reported in Structural material. The demand on stocks carried here being particularly heavy, mill orders for Plates have not been numerous, but have been quite large. Among them was an order for 900 tons of Steel for Duluth. Store trade in Plates has been very fair. Black Sheets are in good demand from heavy buyers, but Galvanized Iron is still moving sluggishly. Prices on these products are about as previously quoted, but Plates are inclined to be firmer.

Merchant Steel.—The week has not been so good as was expected, but contracts are beginning to be talked of by some buyers. Bessemer Bars from billets are quoted at 2¢ @ 2.15¢, from mill, but other prices are unchanged, as follows: Tool Steel at 6½¢ @ 8¢ and upward, according to brand; Open-Hearth Machinery at 2.30¢ @ 2.65¢, Spring at 2.50¢ @ 2.75¢, Tire at 2.30¢ @ 2.60¢, and Bessemer Bars at 2.20¢ @ 2.30¢.

Track Supplies.—Steel Rails are neither improving in demand nor changing in price. Fastenings are quiet, with nominal rates, 1.85¢ @ 1.90¢ for Iron Splice Bars, 2¢ for Spikes, and 2.80¢ @ 2.90¢ for Track Bolts with Hexagon Nuts.

Old Rails and Wheels.—Buyers are bidding \$22.50 for Old Iron Rails, but holders ask \$23. No transactions are reported. Old Steel Rails are dull at \$14.50 @ \$17, according to length. Old Car Wheels have shown no movement whatever, and are altogether nominal at \$16.50 @ \$17.

Scrap.—A great deal of business has been done in the past week, but consumers state that plenty of old material is being offered, so that prices are unchanged. Dealers quote as follows per ton of 2000 pounds: No. 1 Railroad, \$19; No. 1 Forge, \$18.50; No. 1 Mill, \$13.50; Fish Plates, \$21 @ \$21.50; Axles, \$24; Pipes and Flues, \$12.50 @ \$13; Horseshoes, \$18.50; Cast Borings, \$7.50 @ \$8; Wrought Turnings, \$11.50; Axle Turnings, \$13; Machinery Cast, \$12; Stove Plates, \$8.50 @ \$9; Mixed Steel, \$11; Coil Steel, \$15; Leaf, \$16; Tires, \$18.

Metals.—Everything in this line shows a fractional decline, except Pig Tin, which is up ¼ a cent. Lake Copper is now to be had at 13¼¢, and Casting brands 11½¢ @ 11¾¢, in carload lots. Copper stocks are rapidly being reduced, and sellers predict better prices in the near future. Prime Western Spelter is selling at 4.85¢ @ 4.90¢ and shows a disposition to go lower. Large orders are withheld, as buyers and sellers are too far apart. Dealers in Pig Lead report a dull week at this center. Considerable Lead has been offered at 4.10¢, but only in exceptional cases have buyers paid this price. Sellers have been obliged to shade the quotation to make sales, and the small transactions reported have been mostly on a basis of 4.05¢.

A. B. Scully and A. M. Castle have established a new firm for the sale of Steel and Steel and Iron Plates, Sheets, Tubes, Rivets, Angles, &c., at 64 South Canal street, Chicago. They have secured a large warehouse extending from 62 to 66 South Canal street, with railroad facilities in the rear, and will carry a complete stock of supplies for the use of boiler makers, tank makers and sheet-iron workers. Mr. Scully was until recently connected with the firm of W. S. Mallory & Co. and Mr. Castle has been the Chicago repre-

sentative of the Lukens Iron and Steel Company of Coatesville, Pa. They are both very popular with the trade and the new firm starts out with excellent prospects.

Cincinnati.

(By Telegraph.)

Office of The Iron Age, Fourth and Main Sts.,
CINCINNATI, May 20, 1891.

There has been a larger volume of business during the week, there being liberal sales of Gray Forge and No. 2 and No. 3 Southern Coke Foundry Iron, for spot and summer delivery, and it is now quite easy to effect sales on the basis of current prices. On longer deliveries an advance is asked, but not readily obtained, so that comparatively little business is done for the closing months of the year. There have been numerous sales of small lots of Southern Car Wheel Iron, the better qualities of which command better prices than have prevailed. Some heavy purchases of Charcoal Iron have been made by the Malleable Syndicate, aggregating about 40,000 tons. Prices in some instances, it is certain, were low, although not made public; but this has helped to give confidence in the future by taking off the market stock that was pressing, and likely to be demoralizing. The buying appears to be for legitimate consumption—not speculative—and mainly by parties who have the money which they could not employ to better advantage. It is not claimed that there is any material increase in the consumption of Iron; the foundries are dull, the repair shops, as a rule, have not started up, and the Pipe Works are running on short time, but there is quite a liberal current consumption nevertheless. The market is gradually working into a more healthful condition, and several of the furnaces in the Southern district are refusing to take orders at current prices; but there are others which are free sellers, and they furnish enough Iron to go round. Closing quotations are as follows:

Foundry.		
Southern Coke, No. 1.....	\$15.00 @ \$15.25	
Southern Coke, No. 2.....	14.00 @ 14.25	
Southern Coke, No. 3.....	13.25 @ 13.50	
Ohio Soft Stone Coal, No. 1.....	16.50 @ 17.00	
Ohio Soft Stone Coal, No. 2.....	13.50 @ 16.50	
Maboning and Shenango Valley.....	17.50 @ 18.00	
Hanging Rock Charcoal, No. 1.....	20.00 @ 22.00	
Hanging Rock Charcoal, No. 2.....	19.00 @ 20.00	
Tennessee and Alabama Charcoal, No. 1.....	17.00 @ 17.50	
Tennessee and Alabama Charcoal, No. 2.....	16.50 @ 17.00	
Forge.		
Gray Forge.....	12.75 @ 13.00	
Mottled Neutral Coke.....	13.50 @ 12.75	
Car Wheel and Malleable Irons.		
Southern Car Wheel.....	19.50 @ 20.75	
Hanging Rock, Cold Blast.....	20.00 @ 21.00	
Lake Superior Car Wheel and Malleable.....	19.00 @ 20.00	

Louisville.

LOUISVILLE, KY., May 18, 1891.

Pig Iron.—The demand for Iron continues fair on the part of buyers generally. A few purchases for large amounts have been made by those believing that the summer and fall would show much business, and that present prices were low enough to make heavy purchases, one transaction of 5000 tons Lady Ensley at full prices being the largest sale, this furnace being unwilling to make the slightest concessions. Sales of Birmingham Iron on basis of \$10.25 for Gray Forge for long deliveries have been consummated, and one of the larger furnaces has placed 20,000 tons during the first ten days of the month, and is disposed to ask \$10.50 for Gray Forge from now on. The general range of prices is \$10.25, though a few lots at exceptional figures, made by holders who were not aware of the strength of the market, were picked up at less than \$10 for Gray Forge at the first of the

week. Few purchases of Car-Wheel Irons have been made, car companies not finding railroads disposed to place orders. It is felt, however, that with the heavy crops they must come in before long. It is reported that side tracks are filled with empty cars and engines that roads are holding back through economy from repairing but will shortly be compelled to place them in the shops and repair them, necessitating heavy buying of material. We quote for cash f.o.b. cars Louisville:

Southern Coke, No. 1 Foundry...	\$14.50 @ \$15.00
Southern Coke, No. 2 Foundry...	13.75 @ 14.25
Southern Coke, No. 3 Foundry...	13.25 @ 13.75
Southern Coke, Gray Forge...	12.75 @ 13.25
Southern Charcoal, No. 1 Foundry...	16.00 @ 17.00
Southern Car Wheel...	17.00 @ 20.00

Philadelphia.

Office of The Iron Age, 220 South Fourth St., PHILADELPHIA, Pa., May 19, 1891.

Pig Iron.—The market keeps steady at about the same prices as quoted a week ago. The demand is not perceptibly larger, although there is some scarcity of good Foundry Iron, which is developing firmer prices. Mill Irons are steady, although in the variety of brands there is an almost equal diversity in prices, the greatest firmness being met with in the best brands. The supply appears to be in very much the same proportion as for some time past, the chief scarcity being, as already mentioned, in the best qualities. Prices realized during the week have in most cases been at figures within the limits quoted herewith, varying with quantity, brand, terms of payment, point of delivery, &c. In regard to the outlook, there is nothing more definite than for some weeks past, except that the end of the depression is just so much nearer. Very buoyant anticipations have been indulged in on account of the crop prospect, and because of the confidence in the improved condition of business generally. These views have been somewhat modified recently, because of less favorable financial conditions, which may, however, be only temporary. Locally there is no disguising the fact that the feeling is one of extreme depression, which is hardly to be wondered at, considering the recent bank and other failures. For the present there is no manifestation of a desire to extend contracts for business operations much beyond the summer months, and this applies quite as much to the buyer as to the seller. There should be a splendid fall trade, if nothing unfavorable intervenes, but, as already mentioned, no one feels much like anticipating the good time coming. For this reason sales are mostly for early delivery and at prices within the limits quoted below, there being no necessity for lower figures, in view of the comparatively small quantities that individual buyers bid for, and equally small chances for higher prices, considering that pretty nearly every furnace will sell a little Iron when they can get bids at market rates. And so it goes from week to week, no change in prices, no perceptible increase either in supply or in demand, except in particular grades, which is about counterbalanced by smaller business in other directions. The disposition of the trade, therefore, is simply to hold on and wait developments; there is no retrogression in either price or demand, so if things are not getting better they certainly are no worse, under which conditions there is no great hardship in waiting to see which way the cat jumps. Sales at following prices, according to brand and point of delivery, the outside figures chiefly for tidewater lots, viz.:

Ohio Softeners, No. 1x	\$19.00 @ \$19.50
Ohio Softeners, No. 2x	18.00 @ 18.50
Standard Penna, No. 1x	17.50 @ 18.00
Standard Penna, No. 2x	16.50 @ 17.00
Medium Penna, No. 1x	17.25 @ 17.50
Medium Penna, No. 2x	16.00 @ 16.25
Virginia, No. 1x	16.75 @ 17.50

Virginia, No. 2x	15.75 @ 16.00
Standard Neutral All-Ore Forge	14.75 @ 15.25
Ordinary Forge Cinder mixed	14.00 @ 14.25
Hot Blast Charcoal	20.00 @ 22.00
Cold Blast Charcoal	24.00 @ 27.00

Bessemer Pig.—Not much interest in this grade of Iron at present, so that prices are little more than nominal at \$17 @ \$17.50 at furnace for standard and \$19 @ \$19.50 for special brands.

Ferromanganese.—Sales of small lots of 80 % at \$65, and held at that for prompt shipments.

Steel Billets.—Prices are steady, but without leading to very much business. There is some inquiry, however, and sellers appear to be firm in their quotations of \$27.50 @ \$27.75, delivered at points on the Susquehanna, and \$28 @ \$28.25 for deliveries on the Schuylkill. Open Hearth and Basic Range from \$30 to \$33, according to requirements of tests, &c.

Steel Rails.—There is so little change in this department that last week's report, or for that matter any report for many weeks past, might be repeated verbatim. The only sale of importance was 7000 tons to the Baltimore and Ohio, by the Carnegie and Cambria companies, at \$30 at mills, and a similar quantity in small lots by other Pennsylvania companies. To-day several thousand tons are again under negotiation, with prospects of sales being closed at any moment.

Muck Bars.—There is a good deal of irregularity, although on the whole prices are firmer. Sales were made last week at very near to \$25.50 at sellers' mills, and since then 500 tons at \$26.25, delivered, with other lots to-day at \$26.75 @ \$27, delivered. The feeling among holders is firmer, and it is believed that bottom figures have been reached, and with hot weather still higher prices are almost certain.

Bar Iron.—With a somewhat better demand prices appear to be stiffening a little, and we are inclined to think that prices are at least $\frac{1}{4}$ ¢ better than the lowest. That is to say, while it is known that some orders were placed at as low as 1.65¢, Philadelphia, it is hard to get any one to name less than 1.72½¢ to-day. Some, of course, ridicule any such low figure for their product, but all the same there is more Iron sold at less than 1.75¢ than there is at higher figures when carload lots and upward are taken. There is an inquiry to-day for several hundred tons for car building, and if this is to be followed by other orders of a similar character it will not be long before there are better prices for Bars.

Skelp Iron.—The market is extremely dull, and, while a few small lots have been taken at 1.70¢ @ 1.75¢ for Grooved, sellers could be found at less money, providing the orders were something worth while bidding on.

Plates.—Business is coming forward with greater freedom, and prospects for its continuance are quite encouraging. At present orders are mostly for small and medium sized lots, but these are sufficient to keep mills fairly employed. Prices show no improvement, however, and when a desirable order is offered extremely low figures are quoted. Ordinarily asking prices (delivered) are about as follows, subject, as above stated, to sharp cuts on large lots:

	Iron.	Steel.
Tank Plates	2.00 @ 2.10¢	2.05 @ 2.20¢
Refined	2.20 @ 2.30¢	2.05 @ 2.10¢
Shell	2.30 @ 2.40¢	2.40 @ 2.50¢
Flange	3.20 @ 3.30¢	2.50 @ 2.75¢
Fire-Box	4.00 @ 4.25¢	3.00 @ 3.50¢

Structural Material.—Mills are not as busy as they ought to be at this season, although the opinion prevails that there will be plenty of business before long. Some mills are running full, others only part

full, so that while prices are nominally unchanged concessions are not hard to obtain on the right kind of an order. Nominal prices, delivered, are about as follows: Angles, 2.05¢ @ 2.10¢; Sheared Plates, 2¢ @ 2.10¢, and 10¢ @ 15¢ more for Steel, according to requirements. Tees, 2.5¢ @ 2.6¢; Beams and Channels, 3.1¢ for either Iron or Steel.

Sheet Iron.—Market fairly active, but some of the mills are running on stock, which will doubtless be called for later on. Prices are irregular, but on the best makes quotations are about as follows:

Best Refined, Nos. 14 to 20	3.00¢ @ 3.10¢
Best Refined, Nos. 21 to 24	3.10¢ @ 3.20¢
Best Refined, Nos. 25 to 26	3.20¢ @ 3.30¢
Best Refined, No. 27	3.40¢ @ 3.50¢
Best Refined, No. 28	3.50¢ @ 3.60¢

Common, $\frac{1}{4}$ ¢ less than the above.
Best Soft Steel, Nos. 14 to 20 3¢ @ 3½¢ || Best Soft Steel, Nos. 21 to 24 | 3½¢ @ 4¢ |
Best Soft Steel, Nos. 25 to 26	4¢ @ 4½¢
Best Soft Steel, Nos. 27 to 28	4½¢ @ 5¢
Best Bloom Sheets, $\frac{1}{4}$ ¢ extra over the above prices.	
Best Bloom, Galvanized, discount	@ 67½ %
Common, discount	@ 70 %

Old Rails.—There is very little demand, and to effect sales holders would have to accept \$18 @ \$18.50, delivered, for Steel or \$21.50 @ \$22.50 for Iron. Nothing doing in seaboard lots.

Scrap Iron.—Market dull and prices a little easier, particularly for anything not strictly first-class quality, viz.: No. 1 Railroad Scrap, \$21 @ \$21.50, Philadelphia, or for deliveries at mills in the interior \$21.50 @ \$22, according to distance and quality; \$15 @ \$16 for No. 2 Light; \$14 @ \$15 for best Machinery Scrap; \$13 @ \$14 for ordinary; \$15 @ \$16 for Wrought Turnings; \$10 @ \$10.50 for Cast Borings, and nominally \$24 @ \$25 for Old Fish Plates, and \$16 @ \$17, delivered, for Old Car Wheels.

Wrought-Iron Pipe.—The demand is improving, and prices are not as irregular as they were a little while back, although extra discounts are not hard to get on desirable orders. Nominal rates are as follows:

Butt-Welded Black	55 %
Butt-Welded Galvanized	45 %
Lap-Welded Black	65 %
Lap-Welded Galvanized	52½ %
Boiler Tubes, 2½ inch and under	55 %
Boiler Tubes, 2½ inch and larger	60 %

Cleveland.

CLEVELAND, May 18, 1891.

Iron Ore.—There is very little on the surface to indicate that any sales are being made, but dealers still continue to report transactions varying in amount from 5000 to 30,000 tons. Every reason seemed to exist a month ago for believing that nothing would be done before July or August, and although the conditions warranting that opinion have not changed in any appreciable degree, something like 850,000 or 900,000 tons of Ore have been let go. Gogebic Bessemer have been sold during the past week at \$4.50 and Menominee Bessemer at about the same figures. Considerable non-Bessemer Ore has also been sold for \$3.50, although it is thought by many that \$3.25 @ \$3.40 will be the quotations before many months go by. Only a trifling amount of old ore has been sent to the furnaces this month, and just what is to be done with the new purchases is a perplexing question. Up to the present time no new Ore has arrived, although there have been shipments from Escanaba in this direction. Scores of vessels that one year ago were rushing, Ore laden, down the lakes with all possible speed are now tied to the docks, with no engagements in view and with little prospect of beginning the Ore-carrying business for two months to come. The freight rate from Ashland and Two Harbors seems

to be fixed at \$1, but all engagements from Escanaba are on private term, believed to be below 75¢ per ton. The amount of Ore on Lake Erie ports to-day is 2,225,000 tons, or very near it, against 850,000 tons on May 18, 1891.

No. 1 Specular and Magnetic Ores, Bessemer quality.....\$5.25 @ \$5.50
No. 1 Specular and Magnetic Ores, non-Bessemer quality.... 4.00 @ 4.50
Gogebic Ore, Bessemer quality... 4.25 @ 4.70
Menominee Ore, Bessemer quality 4.40 @ 4.50
Menominee Ore, non-Bessemer quality..... 3.40 @ 3.50

The most unique feature of the Ore situation is the fact that the great reduction over last season's prices is not likely to affect the prospective output 100,000 tons. In other words, only the smallest amount of that can possibly be made to answer the purposes of the furnacemen will be taken, even at the low quotations now existing. Even were the cost to the furnacemen to be still further cut down, it is doubtful if the sales for 1891 would exceed 4,000,000 tons, or 4,500,000 at the most. The big railway freights and the high prices for Coke make it impossible for the furnacemen to plunge heavily into the business of manufacturing Iron, although prices for Ore are fully as low as they had expected them to be, and the vessels are transporting it to the lake ports for just about cost.

Pig Iron.—Local dealers have nothing new to report. They are not selling much Iron, although it is admitted that the demand is fairly good. Buyers are asking for Bessemer Iron for quick delivery, but there is so little to sell that dealers are not very solicitous about hurrying sales. A sale of a few hundred tons of Foundry Iron is reported at \$16, cash, at the furnace. Forge Irons are in fair favor, but stocks in the valleys are very low indeed.

Old Rails.—Not very much is being done in the way of sales. We hear of one purchase of a small lot of Old Americans at \$23.50.

Manufactured Iron.—A fair week's business is reported, with no change in prices. Common Bar still selling for about 1.60¢ @ 1.65¢.

Scrap.—The market is fairly active, but there are no changes in prices. No. 1 Railroad Wrought selling for \$20; Cast Scrap, \$13.50 @ \$14, and Old Car Wheels \$16.50 @ \$17.

(By Telegraph.)

Several large sales of Non-Bessemer Ore to Eastern furnacemen have occurred this week. The amounts taken are believed to aggregate 150,000 tons, at prices equivalent to \$3.50, f.o.b. vessels Cleveland. The Pig-Iron market is extremely dull again.

Pittsburgh.

Office of The Iron Age, Hamilton Building, Pittsburgh, May 19, 1891.

Pig Iron.—There has been no important change in the general situation since our report of a week ago. Notwithstanding the reduction for several months past in the supply (44,000 tons reported for the month of April) the market continues slow and weak, and with the exception of Bessemer, prices are lower than when the coke strike commenced. Even Bessemer Iron appears to have weakened the past week, with a sale of 2000 tons reported for immediate delivery at \$16.50, cash, whereas for some weeks preceding there had been no sales below \$17, and some holders were asking \$17.50 and \$18, and refusing to sell for less. In regard to Mill Iron, the demand continues light and consumers have been enabled to get all they want at prices quoted. As a rule they are not inclined to buy beyond

their immediate necessities. Foundry Irons continue dull, and the prospect now is not encouraging for much improvement until July. We quote prices of various grades as follows:

Neutral Gray Forge.....	\$14.00 @ \$14.25,	cash
White and Mottled.....	13.50 @ 14.00,	"
All-Ore Mill.....	14.75 @ 15.25,	"
No. 1 Foundry.....	16.00 @ 16.50,	"
No. 2 Foundry.....	15.00 @ 15.50,	"
No. 3 Foundry.....	14.00 @ 14.50,	"
No. 2 Charcoal Foundry.....	21.50 @ 22.00,	"
Cold-Blast Charcoal.....	25.00 @ 27.00,	"
Bessemer Iron.....	16.50 @ 17.00,	"

So far as we can learn, but few Ore contracts have been made by furnacemen, who, as a rule, appear inclined to hold off for lower prices.

Muck Bar.—There is a fair business, but prices remain about as last quoted. Sales reported at \$26.25, \$26.50 and \$26.75. Makers say that \$26, at which a goodly number of sales were reported a few weeks ago, affords no margin for profit, and there are now but few, if any, sellers at that price. A good many country mills now make a specialty of converting Pig Iron into Muck. They are supplied with the Pig Iron and are paid so much per ton for converting it. Some of our Pittsburgh brokers do a good deal of business of this character.

Manganese.—There is a pretty fair demand, but it is chiefly for small lots for immediate or nearby delivery. Sales of domestic 80 % at \$66.50, cash, which has been the standard price for several weeks; 80 % foreign cannot be placed here at the price quoted, hence the domestic has the call in this market at the present time.

Manufactured Iron.—There has been no material change in the situation since our last report. While the demand is not active it is all, possibly, that can be expected under existing circumstances. Prices remain about as last quoted: Standard city-made Iron, full extras, 1.70¢ @ 1.75¢ for Bars; 2.10¢ @ 2.15¢ for Plate and Tank; No. 24 Sheet, 2.80¢ @ 2.85¢, all 60 days, 2 % off for cash; Skelp Iron, 1.62½¢ @ 1.67½¢ for Grooved and 1.85¢ @ 1.90¢ for Sheared, four months, 2 % off for cash. From the Mahoning Valley district the report is that the mills out there are pretty well filled up with orders, and that prices are firmer in consequence. Only desirable orders can be placed at anything under 1.60¢ rates for Bars, half extras; 1.55¢ is now considered bottom prices in that district.

Nails.—There is nothing new to note; business continues light, while prices remain unchanged. Steel Cut Nails, 30 to 35 average quoted at \$1.55 @ \$1.60, f.o.b. at factory, 60 days, 2 % off for cash. Wire Nails are still quoted at \$2, 60 days, 2 % off for cash, although it is intimated that a desirable order might be placed below the price quoted. Owing to the labor troubles in the building trades here and elsewhere, the outlook for the Nail trade is not regarded as being very encouraging.

Structural Material.—There is possibly more inquiry, but business in this line is not what it should be. This may be attributed largely to labor complications, by reason of which a good many contemplated improvements have been abandoned for the present, perhaps altogether, while others are being held in abeyance. The carpenters' strike still continues here, and there is no telling when it will be brought to a close. As a consequence, for the present there is little doing here in the way of building. Prices remain as last quoted: Channels and Beams, 3.10¢; Angles, 2.05¢; Steel Sheared Bridge Plates, 2.30¢; Tees, 2.65¢; Universal Mill Plates, Iron, 2.10¢; Refined Bars, 1.85¢ @ 1.90¢.

Steel Plates.—But little new business placed here of late, and the mills are

working chiefly on old contracts. Prices easy, but without quotable change. Fire Box, 3.90¢ @ 4.25¢; Flange, 2.70¢; Shell, 2.45¢ @ 2.50¢; Tank, 2.10¢.

Barb Wire.—The syndicate prices are still, so far as can be learned, being adhered to by manufacturers, who are in not a few instances being undersold by jobbers, who have a big stock, bought before the advance. We repeat former quotations: Glidden Painted, \$2.85; do. Galvanized, \$3.40; Four-Point Painted, \$2.80; do. Galvanized, \$3.35. The above rates are for car lots, f.o.b. at makers' works.

Wrought Iron Pipe.—The Pipe trade continues slow, but is expected to improve in the near future. There is usually an improvement during the latter part of May or early in June. Prices are unchanged. Discount on Black Butt Pipe, 55 %; on Galvanized do., 45 %; on Black Lap Weld, 65 %; on Galvanized do., 52½ %; Boiler Tubes, 2½ inch and smaller, 55 %; 2½ inch and larger, 60 %; Casing, all sizes, 55 %.

Wire Rods.—There has been some inquiry the past week, and the market is firmer. We now quote at \$37 @ \$37.50 at makers' mill, at which some sales have been made. The Rod mill of Carnegie, Phipps & Co. broke down a few days ago, and for the time production in this district has been considerably reduced thereby.

Old Rails.—There appears to be more inquiry for Old Iron Rails, but prices show no improvement. We are advised of sales of three lots of 500 tons each at \$23, \$23.25 and \$23.25 respectively. There is an increased demand for Old Steel Rails for remelting, and the market is firmer; may be quoted as \$17.25 @ \$17.75.

Billets and Slabs.—There is continued inquiry for Billets, and prices are still tending upward; we now quote at \$25.50 @ \$26.25, with a sale of 1000 tons reported at \$26.25.

Steel Rails.—There is a fair business, and the market here is reported steady at \$30, f.o.b. at mill. At the price quoted there was an order placed for 5000 tons during the week.

Merchant Steel.—Business is still reported light, while prices are weak and irregular. Bessemer Steel, in a jobbing way, is quoted as follows: Tool Steel, 7¢ @ 7½¢; Spring, 2½¢; Machinery, 2.40¢ @ 2.50¢; Toe Calk, 2½¢; Steel Tire, 2.20¢; Steel Bars, 1.90¢, full extras; Crucible Spring Steel, 4¢; Crucible Machinery, 5¢.

Railway Track Supplies.—There is a moderate business at unchanged prices. Spikes, either Iron or Steel, \$2.05, Splice Bars, either Iron or Steel, 1.85¢ @ 1.95¢; Track Bolts, 2.80¢ with Square and 2.90¢ with Hexagon Nuts.

Old Material.—The demand for all kinds of Old Material continues light and prices are weak. We can report sales of No. 1 Railroad Wrought Scrap at \$19 @ \$19.50 per net ton; Cast Scrap, \$14 @ \$14.50, gross; Car Wheels, \$16.50 @ \$17, Leaf Steel, \$20; sale 2000 tons Steel Bloom Ends at \$18.

Connellsville Coke.—Reports from the Connellsville Coke region indicate that the strike will soon be a thing of the past. The number of men going to work is steadily being increased each day, and at present rate it will not be long until operators will be able to get out all the Coke there is a demand for. A good many furnacemen say they will not start up their furnaces again until there is a material improvement in the Pig-Iron market.

St. Louis.

OFFICE OF *The Iron Age*, 214 N. Sixth st.,
St. Louis, May 18, 1891.

Pig Iron.—Business during the week under review has shown little or no change from the week immediately preceding it. The demand has been moderately active, but prices do not show the expected snap, and furnacemen and agents alike are beginning to wonder when the long-expected turn will come. The general outlook is improving, however, and, while it is true prices are no higher than heretofore, it is also true they are no lower, and it is almost out of the question to shade the prices as quoted herewith. Southern Coke No. 2 and No. 3 are in active demand, and Gray Forge is also freely ordered. The local demand is improving, and stove foundries, agricultural implement manufacturers and pipe works are all busy, and have been buyers in a small way during the week under review. An investigation of the stocks on hand in consumers' yards is indicative of an early revival in trade and the prospects for a busy summer and fall are in a fair way to be realized. Consumers are desirous in some cases of placing orders for future delivery, for which furnacemen quote 25¢ per ton additional, and even at the advance the latter are not anxious to sell, as the feeling is becoming more prevalent daily that it is only a question of a few weeks when prices will be higher than at present quoted. We quote as follows for cash, f.o.b. cars St. Louis:

Southern Coke, No. 1 Foundry.	\$15.75 @ \$16.00
Southern Coke, No. 2 Foundry.	14.75 @ 15.00
Southern Coke, No. 3 Foundry.	14.00 @ 14.25
Gray Forge.	13.50 @ 13.75
Southern Charcoal, No. 1 Foundry.	17.50 @ 18.00
Southern Charcoal, No. 2 Foundry.	17.00 @ 17.50
Missouri Charcoal, No. 1 Foundry.	15.50 @ 16.00
Missouri Charcoal, No. 2 Foundry.	15.00 @ 15.50
Ohio Softeners.	18.75 @ 19.75

Bar Iron.—The market continues to improve in a slight degree. The demand from railroads is not as large as is usual at this season of the year, but it is expected to improve in the near future. Prices are firm and are only occasionally shaded. We quote as follows: Lots from mill command 1.70¢ @ 1.75¢ delivered on cars at East St. Louis. Small lots from store are quoted at 1.82½¢ @ 1.87½¢, according to quantity.

Barb Wire.—The market continues in much the same condition as last noted. The volume of trade is large and prices as quoted herewith are strictly adhered to. We quote as follows: Painted, 2.95¢; Galvanized, 3.50¢; carload lots 16¢ per cwt. less than above prices.

Wire Nails.—Trade in this department continues unusually light for the season. Notwithstanding the large amount of building which is now in progress there is no improvement noticeable in the demand for Wire Nails. Prices continue weak and unsatisfactory, and mills claim to be losing money on every keg of Nails sold. We quote as follows: Carload lots from mill command from \$2.10 to \$2.15, f.o.b. St. Louis.

(By Telegraph.)

The demand for Pig Iron continues to improve, but prices cannot be referred to in the same manner. A sale is reported to-day of 1000 tons Gray Forge delivered at a nearby point at \$13.50, payable four months from date of same. This is equal to \$9.90 at furnace, which is decidedly low. The demand for Bessemer Pig holds up well. The Jupiter Furnace Company of this city have 3000 tons of No. 1 and

500 tons Ferrosilicon, which they are anxious to dispose of to clean up their stock. In Pig Lead the demand is light, as consumers are purchasing only from day to day to supply their actual requirements, and notwithstanding the low price at which Lead is quoted they cannot be induced to purchase for future delivery—at least not until the outlook is better than at the moment. To-day's market may be quoted steady, but dull, at 4¢. During the past week about 400 tons have changed hands at 4¢ for May and June delivery. The offerings of Spelter are in excess of the consumptive demand, and as a consequence the storehouses have received several hundred tons. The offerings for the next three months' delivery are large and sales of several hundred tons are reported as low as 4½¢. Reports from the Zinc Ore districts indicate a large increase in the Ore production, and this, with the number of new furnaces now nearing completion, indicates that the production for the current year will likely show considerable increase.

New York.

Office of *The Iron Age*, 96-102 Reade street,
NEW YORK, May 20, 1891.

The stagnation in business in this market is quite general and appears to have reached its climax in the last few days. The volume of current business has dwindled down, until transactions assume importance which in active times would hardly be thought worth mentioning. The strike, which affects the architectural iron makers in this city, naturally has its influence upon the local situation, but the dullness is marked, too, in all lines of the importers' business and in Steel Rails, Old Material and Track Supplies.

American Pig.—The market has been very quiet. There have been reports that former orders had been canceled, and in some cases, where there is trouble with labor, deliveries are being deferred. We note a sale of 1500 tons of Bessemer Pig at \$17, at furnace. Northern brands are quoted \$17 @ \$18 for No. 1, \$16 @ \$16.50 for No. 2, and \$14 @ \$14.50 for Gray Forge. Southern Iron sells at \$16.50 @ \$17.25 for No. 1, \$15.50 @ \$16.25 for No. 2, and \$14 @ \$14.50 for Gray Forge.

Spiegeleisen and Ferromanganese.—Business is very light, the mills buying Ferro only to cover immediate wants. Importers claim that the supply is restricted on account of a strike of the furnacemen in England against a reduction of wages. We quote \$63.50 @ \$64.50. The latter figure has been paid in some cases.

Billets and Rods.—There is some inquiry for Foreign Billets for re-export, which are quoted at \$32, on which the drawback is 99 % of \$8.98, while on Rods, which can be laid down at \$45 for foreign, the drawback is 99 % of \$13.44. Domestic Rods are offered at \$38 at tidewater.

Steel Rails.—The market is lifeless. No business of any consequence has been done, and little work of magnitude is in the market. It is not surprising that under the circumstances rumors crop up that concessions are being made. We have looked into the matter, but find that these rumors are without any foundation whatever. The mills have all the work they need for next month, and some of them are pretty well provided for later months, but the time is approaching when some eagerness for work may be displayed.

Western Pennsylvania works have taken some business. We continue to quote \$30.75 at tidewater.

Rail Fastenings.—We continue to quote Fish Plates 1.70¢ @ 1.75¢; Bolts, 2.60¢ @ 2.75¢, and Spikes \$1.90 @ \$1.95, delivered.

Manufactured Iron and Steel.—Some sellers report a little more activity, but generally speaking business is dull and local consumption small, owing to the strike. We quote Angles, 1.95¢ @ 2.10¢; Sheared Plates, 1.95¢ @ 2.25¢; Tees, 2.45¢ @ 2.75¢, and Beams and Channels, 3.1¢, on dock. Steel Plates are 3¢ @ 2.15¢ for Tank, 2.3¢ @ 2.6¢ for Shell, and 2.5¢ @ 2.7¢ for Flange, on dock. Bars are 1.7¢ @ 1.9¢, on dock.

F. G. Gorham has been appointed New York representative of the Bethlehem Iron Company, whose new office in the Union Trust Company will be opened at an early date.

New York Metal Exchange.

The following sales are reported:

THURSDAY, May 14.	
85 tons Tin, June.	20.45¢
40 tons Tin, June.	20.40¢
25 tons Tin, July.	20.35¢
35 tons Tin, August.	20.35¢
10 tons Tin, August.	20.40¢
25 tons Tin, June.	20.50¢

FRIDAY, May 15.	
10 tons Tin, June.	20.45¢
10 tons Tin, September.	20.35¢

MONDAY, May 18.	
25 tons Tin, August.	20.35¢
10 tons Tin.	21.00¢
(Buyer's option all the year, one day's notice.)	
10 tons Tin.	20.75¢
(Buyer's option all the year, one day's notice.)	
35 tons Tin.	20.85¢
(Buyer's option all the year, one day's notice.)	
25 tons Tin, September.	20.35¢

TUESDAY, May 19.	
10 tons Tin, September.	20.35¢
10 tons Tin, spot.	20.3¢
10 tons Tin.	20.27½¢
(Delivery on or before May 20.)	

Detroit.

WILLIAM F. JARVIS & Co., Detroit, Mich., under date May 18, say: Some heavy transactions are reported in Lake Superior Charcoal Pig Iron, but what the actual rock bottom figures are is still difficult to tell, figuring upon a present cash basis, the terms of settlement having been so widely different, but it is credibly reported that figures are in advance of the lowest ones noted in the Chicago market for this grade of metal. The selling seems to be confined to two or three furnaces, who, on account of a large accumulation of metal seem to have been forced into the market. They have, to a certain extent, set the pace in the Eastern market at a little less than we reported a week ago, but, at the same time, more favorite brands are bringing from 50¢ to \$1 per ton more for special orders. Altogether, probably between 20,000 and 30,000 tons were placed during the last week of Lake Superior Charcoal Iron, which would make it the banner week in the history of the trade this year. From the good crop outlook and reports from various sources it would seem that the future Iron market is being in some cases discounted by a few Lake Superior furnaces in their holding on to their Iron at present, and it is a reasonably certain thing that before many weeks—in fact, almost any time—a decided bettering of the market will be seen. For Coke Iron in our local market transactions have been small in volume at ruling figures. Southern furnaces are fighting shy of long deliveries, while Northern furnaces, except those situated in Central Ohio, are refusing any orders until the Coke question is settled and the reduction in railroad rates has been fully determined upon. In accordance with lower figures made we reduce our price on Lake Superior

Charcoal, but otherwise report quotations of last week, as follows:

Lake Superior Charcoal, all numbers.....	\$18.00 @ \$18.50
Lake Superior Coke, Bessemer.....	18.00 @ 18.50
Ohio Blackband (40 per cent.).....	18.00 @ 18.50
Lake Superior Coke Foundry, all ore.....	18.00 @ 18.50
Southern No. 1.....	16.25 @ 16.75
Southern Gray Forge.....	14.75 @ 15.25
Jackson County (40) Silvery.....	18.25 @ 18.75

Financial.

Conservative New York bankers most closely connected with legitimate business profess to feel little anxiety respecting the outflow of gold to Europe or other influences supposed by some to endanger the stability of monetary affairs. Gold ordinarily is dead stock, valuable only as representing a reserve power available in great emergencies to fortify credit. Bankers have gone through long periods doing business satisfactorily on nothing but paper. Beyond this they feel secure in the enormous wealth of the country and the ability of the nation, so far as currency is concerned, so to modify the national policy as to conform to any changing conditions. At present Europe is sorely in need of gold, which we can loan on adequate security. About \$4,000,000 more was engaged for this week's steamer of Wednesday. It is admitted by local bankers that the harvest currency requirements may cause a stringent market, but customers are given "all the accommodation they want." On the other hand, business wants are conservative. Concerning reports from Europe, a statement by the German banker, Herr Bleichroeder, that Russia would require three years more to prepare for war, because she has adopted a new rifle, becomes more significant since the announcement that the Chatterlain Arms Company are under contract for the delivery to Russia of 3,000,000 of the new weapon. Among local features it is satisfactory to observe the lessening of labor troubles, and on the Northwestern railroad system the long-pending strike ended in disaster to the switchmen, who were antagonized by the Federation of Railway Employees. In the coke and anthracite coal regions affairs are in better shape.

The stock market was irregular and feverish, influenced chiefly by disquieting rumors from London and withdrawals of gold. Upon the appearance of the bank statement the market sharply rallied. Because of the Whit-Monday holiday exchanges in London were closed. On Tuesday rumors from Europe were renewed. Union Pacific sold down to 42½ and other stocks were depressed. Chicago, Burlington and Quincy declared their usual quarterly dividend of 1 per cent. Prices generally touched a lower point than on Saturday, when the statements imputed to Herr Bleichroeder created the impression that the financial crisis abroad was not yet over.

United States bonds were quoted as follows:

U. S. 4½, 1891, registered.....	100
U. S. 4½, 1891, coupon.....	101
U. S. 4, 1907, registered.....	119½
U. S. 4, 1907, coupon.....	119½
U. S. currency 6s, 1895.....	111

Money continues easy, but rates are firmer for time contracts and higher for commercial paper. For gold shipments lenders fixed the rate at 5% for 60 days to six months on contracts repayable in gold, 5½% for same time on first-class collateral and 6% on good Stock Exchange security repayable in currency. The city banks and trust companies are entirely out of the market for commercial paper and the former appear to be waiting for outside loans to mature. The buying is confined to out-of-town institutions and individuals. Rates are 5½% for 60 to 90 days' indorsed bills receivable and 5½% to 6% for four months' acceptances. The bank re-

turn of Saturday showed a loss of \$1,128,900 in cash and a gain of \$148,900 in reserve, leaving the surplus \$4,912,850. The increase was wholly unexpected, although the movement of currency from Western points was known to have been heavy. Loans contracted \$4,442,200.

The posted rates for bankers sterling are \$4.84½ @ \$4.89. The Bank of England rate of discount was advanced to 5 per cent., and an additional premium of ½d per ounce was paid in London for American gold, thus still further lowering the gold shipping point. The weekly statement of the Bank of France shows a gain in specie of 14,375,000 francs gold and 1,925,000 francs silver. British consols and French rentes have declined materially.

The clearings of 60 cities last week show a decrease of 17.1%; New York decreased 22.6%; Boston, 25%; Philadelphia, 14.6%; St. Louis, 9.9%; Baltimore, 17.8%; Pittsburgh, 12%; Kansas City, 17.4%; Louisville, 6.6%; Omaha, 23.5%; Portland, Ore., 19.7%; Seattle, 14.30%; Birmingham, 24.4%, and Chattanooga, 33.1%. Chicago increased 4.2%, Cincinnati, 4%.

The merchandise markets are hardly as active in the absence of speculation. Wheat has been irregular, the advance checking exports, closing firm. Corn is dull and a fraction higher. Provisions dull and easier. Sugars quiet and tending lower. Trade in dry goods is in a stronger position. The clothing woollens market was overcast by the Levy Bros. & Co. failure, causing losses to some agents.

Exports of merchandise from this port for the week were \$6,794,000; imports, \$9,632,000. Total exports since January 1, \$135,836,000; total imports, \$191,208,500.

Coal Market.

Anthracite Coal continues to be produced and put on the market with a freedom that nullifies previous resolves. The actual output for both April and May to this date being very much in excess of the limits prescribed—so much that "good faith" is sometimes called in question. The allotment of 2,000,000 tons for April was largely exceeded, and the first half of May shows little, if any, improvement in this respect. Prices consequently are not as firm as operators had hoped for, and the market hardly warrants an advance June 1, as has been proposed, and in regard to which final action will be had the 28th inst. The production for last week was 747,000 tons; total for the year, 11,826,949 tons; increase over last year 1,928,074 tons. The Pennsylvania Railroad tonnage of Coal for the week was 244,923 tons; of Coke, 49,319 tons. The Clearfield product for the week was 64,389; Cumberland, 90,670; Beach Creek, 38,844; Coxe Brothers deny the report that they had authorized a cut in prices, affirming that they are practically bare of Coal. Buckwheat and Pea are a trifle easier than recently, when a sharp demand was caused by prospects of trouble in the Bituminous regions. The firm say: Beyond our notification to the Interstate Commerce Commissioners of the failure of the Lehigh Valley Company to obey the order to reduce tolls, we have taken no steps. The notification was sent on April 27. We reason that the initiative now rests with the commissioners. If they cannot enforce their order we are sure we cannot.

The small steam sizes are easier, Buckwheat selling at \$1.80 @ \$1.90, alongside, and Pea as low as \$2.65, alongside; Broken and Egg are scarce; Lehigh is scarcer than Free Burning.

Vessels are reported in fair supply at Port Richmond, and freights are quoted at 85¢ @ \$1.05 and discharge to Boston, and 75¢ @ 90¢ to Providence. The

freights from the Coal shipping ports in New York harbor are quoted at 60¢ @ 70¢ and discharge to Boston.

The machine miners and operators in the Hocking Valley have reached a compromise for the coming year. Old prices will be paid for all work, except room turning, which was advanced to 46½¢ a ton.

The work on the Port Reading extension of the Philadelphia and Reading Railroad from Bound Brook to the Arthur Kill is now well under way.

Metal Market.

Pig Tin.—The upward movement in prices that set in at the date of our last review has been helped along by the announcement of very light shipments from the primary sources of supply and depleted stocks in London, that served to offset the effect of heavy local holdings upon the impressions of speculative operators. Net cash prices for May and June deliveries have been up to 20.45¢, an advance of ½¢ and .35¢ respectively since the 13th inst. Spot lots were subsequently sold at 20.30¢ and May delivery was offered at 20.35¢, in the face of strong London cables. This seeming paradox leads to a suspicion that the local "bull" interest is on the alert to realize. During the interval between the reaction the trade were treated to a fresh speculative novelty in the shape of purchases of 55 tons, buyers' option all the year, one day's notice. One 10-ton lot was taken at 21¢; two lots aggregating 35 tons at 20.85¢, and 10 tons at 20½¢, on those conditions. Wednesday's market was a shade easier, although London cables showed no change at that point. For prompt delivery 10-ton lots were offered at 20.35¢, net cash, and smaller quantities were quoted at 20.45¢ @ 20.55¢ regular. May and June deliveries were offered at 20.35¢, with 20½¢ the best bid.

Copper.—Small lots of Lake Superior Ingot were sold at 13½¢ early in the week. Since then numerous offers at 13½¢ have been made without leading to business, and at this writing there is a demand for buyers at 13¢. The latter price, it is understood, would be accepted by almost any of the mining companies, although such is not admitted to be the case at headquarters, and doubtless fairly reflects market value at the present time. Arizona Ingot has weakened to 12½¢ on cash business and is slow of sale at the decline. Best casting brands are secured at 11½¢, cash, without difficulty, and 11¢ has been accepted for others.

Pig Lead.—Neither the local or Western markets have undergone any change during the past week. Smelters offer with some reserve, and spot supplies are tendered in a manner suggestive of patience on the part of holders. The supreme indifference manifested by consumers has its weight at present, however, and, judging from surface appearances, it is no easy matter to place lots of 50 tons or more at 4.25¢ here, or at corresponding prices in the West, although 4.30¢ is at present the rate for single carloads, for prompt or near future delivery.

Spelter.—No increase in the volume of business or in the demand is visible at this center, but there is some manifestation of greater firmness on the part of sellers despite that fact. Probably some brands that do not enjoy the best reputation may be secured at 4.85¢, for early delivery, but prime Western at 4.90¢ seems to be obtainable in limited quantities only, and 5¢ is asked for July and later shipments. At the moment transactions or inquiries involving more than single carload lot are the exception.

Antimony.—No change has taken place during the past week. Orders still run almost wholly on small lots, and, with ample supplies prices are barely steady. Hallett's quoted at 15¢ @ 15½¢, LX at 15½¢ @ 15½¢ and Cookson's at 16¢ @ 16½¢, in wholesale quantities.

Tin Plate.—The market still suffers from the burden of heavy importations that not only supply the present wants of many large consumers, but provide for probable requirements some time ahead, and leave a surplus in some quarters that cannot be conveniently turned at present. The weight is chiefly in ordinary Coke finish Plates, sales of which have been made at 5¢ @ 10¢ decline. Bright Charcoals and Ternes have undergone very little change. Quotations for large lots on the spot are as follows: Coke Tins—Penlan grade, IC, 14 x 20, \$5.05; J. B. grade, do., \$5.25; Bessemer do., \$5.15; Siemens Steel, \$5.35. Stamping Plates—Bessemer Steel, Coke finish, IC basis, \$5.60; Siemens Steel, IC basis, \$5.75 @ \$5.85; IX basis, \$6.85. IC Charcoals—Melyn grade, \$6.12½; for each additional X add \$1.50; Allaway grade, \$5.75 @ \$5.80; Grange grade, \$5.90; for each additional X add \$1. Charcoal Ternes—Worcester, 14 x 20, \$5.50; 20 x 28, \$10.50; M. F., 14 x 20, \$7.15; do., 20 x 28, \$15; Dean, 14 x 20, \$5.05; do., 20 x 28, \$10.10; D. R. D. grade, 14 x 20, \$4.85; do., 20 x 28, \$9.75; Mansel, 14 x 20, \$5; do., 20 x 28, \$9.85; Alyn, 14 x 20, \$5; do., 20 x 28, \$9.90; Dyffryn, 14 x 20, scarce; do., 20 x 28, \$10.50. Wasters—S. T. P. grade, 14 x 20, \$4.75; do., 20 x 28, \$9.30; Abercarne grade, 14 x 20, \$4.70; do., 20 x 28, \$9.25.

British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, May 20, 1891.

The market for Pig Iron warrants has been active and excited. Scotch advanced 5/ to 54/3; Cleveland, 2/6 to 42/6; and Hematite, 3/ to 53/. Outside of speculative circles the movement is looked upon as being unhealthy, the state of legitimate trade not justifying any such advance, while the rise is likely to adversely affect the tendency toward improvement in consumptive demand that has appeared latterly. The "bull" element seem to be masters of the situation, however, and their manipulations will likely be continued until outstanding "bear" accounts are considerably reduced. The advance has induced some makers to light more furnaces and there are now 63 in blast in Scotland. To-day there were sales of Scotch Warrants at 53/6 @ 54/, Cleveland at 41/ @ 41/3 and Hematite at 53/6 @ 54/. Stocks in warrant stores amount to 509,000 tons Scotch and 118,000 tons Cleveland, a decrease of 3000 tons in the former since May 1. Cleveland stocks about the same as at the beginning of the month.

Pig Tin has advanced to £92. 10/ for prompt delivery and £92 for three months futures, while purchases at £93 for June delivery were induced by expected scarcity of stock in that month based upon present moderate supply, and light Straits shipments. The quantity on warrants, it is believed, will become much reduced.

Copper has ruled firm at about £1 ad-

vance on Merchant Bars. The financial disturbances on the Continent had only temporary effect here, although a large part of the stock held here is controlled by French financiers. Copper is following the general tendency, and the market resists the attempts of the "bear" interest to depress prices. Stocks decreased 3188 tons and the visible supply 2522 tons during the first half of May. Sales of Furnace Material have been heavy, including 5000 tons Anaconda Matte taken by one firm of smelters, deliverable 1000 tons per month. Among other transactions were 87 tons Anaconda at 9/10½; 500 tons ditto, private terms; 500 tons ditto at 10/; 550 tons Montana, private terms, and 1600 tons ditto at 9/9. Price for the latter has since been advanced to 10/. Chili charters for first half of May were 400 tons.

Tin Plate has been in limited demand and prices are unsettled, with the tendency in buyers' favor. There is more inquiry for Ternes, but no important business has taken place.

Scotch Pig Iron.—There is more doing in makers' Iron, and the market shows better tone:

No. 1 Coltness, f.o.b. Glasgow.....	63/
No. 1 Summerlee, " " " " " "	60/6
No. 1 Gartsherrie, " " " " " "	60/
No. 1 Langloan, " " " " " "	62/6
No. 1 Carnbroe, " " " " " "	55/6
No. 1 Shotts, " at Leith " " " "	62/6
No. 1 Glengarnock, " Ardrossan " " "	60/
No. 1 Dalmeilington, " " " " " "	53/6
No. 1 Eglinton, " " " " " "	51/6

Steamer freights, Glasgow to New York, 2/; Liverpool to New York, 10/.

Cleveland Pig.—The market is unsettled and prices are irregular; makers now quote 41/6 @ 42/ for No. 3 Middlesborough, f.o.b.

Bessemer Pig.—Business is moderate, but prices are higher, in sympathy with the rise in warrants. Makers quote 53/6 for West Coast brands, Nos. 1, 2 and 3, f.o.b. shipping port.

Spiegeleisen.—There is a fair business passing, and prices are steady. English 20 % quoted at 95/ @ 97/6, f.o.b. shipping port.

Steel Rails.—No change in prices this week. Demand continues fair. Heavy sections quoted £4. 10/, and light sections £5 @ £6, f.o.b. at N. W. England shipping point.

Steel Blooms.—The market quiet and unchanged. Makers ask £4. 5/ for 7 x 7, f.o.b. at N. W. England shipping point.

Steel Billets.—Demand still runs light and prices are without change. Bessemer, 2½ x 2½ inches, quoted at £4. 10/, f.o.b. at N. W. England shipping point.

Steel Slabs.—A moderate business doing at old prices. Bessemer quoted at £4. 10/, f.o.b. at N. W. England shipping point.

Old Iron Rails.—Demand slow and prices the same as last week. Tees quoted at £2. 17/6 @ £3 and Double Heads £3 @ £3. 2/6, f.o.b.

Scrap Iron.—Moderate supplies offering and sellers firm. Heavy Wrought quoted at £2. 10/, f.o.b.

Crop Ends.—Slow movement and prices unchanged. Bessemer quoted at £2. 15/ @ £2. 17/6, f.o.b.

Tin Plate.—The situation is unchanged and prices are irregular. We quote, f.o.b. Liverpool:

IC Charcoal, Alloway grade.....	18/ @ 18/3
IC Bessemer Steel, Coke finish.....	16/3 @ 16/6
IC Siemens " " " " " " " " " "	16/6 @ 16/9
IC Coke, E. V. grade.....	16/ @ 16/3
Charcoal Ternes, Dean grade.....	16/ @ " "

Manufactured Iron.—The market throughout is quiet, and prices are barely steady. We quote, f.o.b. Liverpool:

Staff, Marked Bars.....	£ s. d. @ 8 10 0
" Common " " " " " "	" " " @ 6 7 6
Staff, Bl'k Sheet, singles.....	" " " @ 6 17 6
Welsh Bars (f.o.b. Wales).....	5 12 6 @ 5 15 0

Tin.—Market firm at the close, but quiet. Straits quoted at £92. 10/, spot, and £91. 15/ for three months' futures.

Copper.—Prices a shade easier at the close and demand less active. Merchant Bars quoted at £52. 12/6, spot, and £53 7/6, three months' futures. Best Selected, £57.

Lead.—Demand quiet and prices a shade easier at £12. 7/6 for Soft Spanish.

Spelter.—There is more doing and the market is firmer at £23. 2/6 for ordinary Silesian.

Imports.

Hardware, Machinery, &c.

Adams Express Company, Hardware, cs., 2
Barbour Bros. & Co., Mach'y, pgs., 19
Baker, Hermann & Co., Arms, cs., 10
Chelsea Jute Mills, Mach'y, pgs., 4
Downing, R. F. & Co., Arms, cs., 52
Edison General E. Co., Mach'y, cs., 20
Godfrey, C. J., Arms, cs., 9
Hartley & Graham, Arms, cs., 15
Henderson Bros., Pots, 600; Fire Grates, 295
International Express Company, Hdw., cs., 3
Lau, J. H. & Co., Arms, cs., 6
Moseman, C. M. & Bros., Horse Clippers, cs., 12
Rankine, James, Pots, 100; Camp Ovens, 67; Covers, 64
Sacks & Richmond, Nails, cks., 15
Schoverling, Daly & Gales, Arms, cs., 20
Wiebusch & Hilger, Arms, cs., 44
Wilson, Thos., Mach'y, cse., 1
Ward, Jas. E. & Co., Anchors, 12; Nails, kegs., 66
Wilson, J. W. & Co., Mach'y, cse., 1
Wright, Peter & Co., Bicycles, cs., 65
Order—Ironware, cks., 32; Hdw., cs., 7

The Scientific and Historical Society of Bridgeport, Conn., are about erecting a handsome structure on the corner of Main and Gibert streets, from plans furnished by Longstaff & Hurd. It will be known as the Barnum Institute of Science and History and is the gift of the late Phineas T. Barnum. The exterior of the building will be exceedingly attractive from an architectural standpoint. The first story will be of red sandstone laid in rock-faced work, above which will be clusters of columns with their capitals and bases, while the third story will be embellished with arched windows composed of dark buff terra cotta. Above these circular windows and below the cornice of the dome is a historical frieze containing figures of about one-half life size. This frieze has five panels, between which are medallions containing the portraits of representative men of the various periods illustrated by the panels. The frieze is designed to be modeled in bold relief, thus making the representations easily discernible from the street. The slanting portions of the roof, the covering of the great dome and of the square tower will be of red unglazed tile, while the upper portions of the dome and tower will be covered with copper. A high tower at the rear of the building is designed for an observatory, the spherical-shaped roof being constructed of steel covered with copper and made to revolve. Over the corner of the entrance to the building will be a statue of Mr. Barnum.

The "center of population," near Columbus, Ind., was last Sunday marked by a stone monument with due ceremony.

HARDWARE.

Condition of Trade.

THERE HAS BEEN little change in the Hardware market since last week, prices continuing substantially as before. The market, as a whole, is not characterized by a strong tone, and in some lines there is a good deal of irregularity, as low and somewhat uneven prices are prevailing. The general line of Shelf Goods are, however, held steadily, and while there is something of a disposition on the part of manufacturers whose books are not full of orders to induce sales by slight concessions, there are few quotable changes. In some lines, especially of seasonable goods, there is something of a scarcity, the demand for such goods having been exceptionally large. It is generally conceded that in several lines of staple goods prices are exceedingly low, and there are some indications that some large buyers have been covering their future needs. A good general view of the market in the different Hardware centers is given in the reports which follow, which will be found deserving of the careful attention of manufacturers and merchants who are interested in a comprehensive view of the state of trade throughout the country at large.

St. Louis.

(By Telegraph.)

The Hardware trade shows improvement in some directions, while in others trade is only fair. Wire Nails continue weak, and jobbers quote from \$2.25 to \$2.30 for large orders from store. Tin Plates are weaker and some low prices are now made for immediate shipment. Barb Wire is in good demand at full prices. Shelf Hardware and seasonable goods are moving freely. Ammunition and Fire Arms are exceedingly dull at unchanged prices. The city trade is heavy and salesmen are sending in good reports from their different districts which indicate a continuation of the present activity.

Chicago.

(By Telegraph.)

The Shelf Hardware trade has swollen quite considerably during the past week. Some houses have been obliged to take on extra help to get out orders fast enough. Orders are not large, but there are plenty of them, showing that the retail merchants are pretty generally sorting up. The demand is very good for Builders' Hardware and for House-Furnishing Goods. Window Screens, Screen Doors, Wire Cloth and other seasonable articles are moving in large quantities. Staple goods are comparatively quiet. Wire Nails are still weak, but Cut Nails and Barb Wire are fairly firm. Tin Plates are still

quoted on a \$7 basis, but concessions are being made quite generally. Tinware and Stamped Ware sympathize with Tin Plates, and are also weak. Brass Tubing and Roll and Sheet Brass are quoted at 25 to 30 off the list, but large buyers can do considerably better than this. Jobbers of Heavy Hardware report an excellent demand for all goods coming under this category.

Portland, Ore.

FOSTER & ROBERTSON.—The rainy weather, while very favorable for growing crops, at the same time has had the effect to retard spring trade by keeping the roads in bad condition and suspending, in a large measure, outside work. However, in spite of these drawbacks, trade continues fairly active, and while it will show no gain, yet will hold its own with previous years.

The downward tendency and continued weakness of the Eastern markets has brought about some changes in prices since our last letter. Wire Nails have been reduced 15 cents per keg; Steel Nails 10 cents per keg; Steel goods 5 per cent.; Bar Lead $\frac{1}{2}$ cent per pound; Manilla, Sisal and Duplex Rope $\frac{1}{2}$ cent per pound. So far there has been little or no change in the price of Axes, for the reason that none of our jobbers were in shape to make a cut and fill orders, all being very short of goods, but as all will soon have fair stock at reduced figures, very naturally there is a general expectation that prices will be materially lower very soon. There is also a probability of a very severe decline in the price of Shot, to take effect within the next few days.

Collections are very irregular and difficult to make, with no prospect of immediate improvement, or until such time as the wool begins to move, which will be some time in June.

Baltimore.

CARLIN & FULTON.—Beyond the usual demand for what we might call seasonable goods, business is far from being active.

It is not the time of the year that we look for much trade from the cotton States, and with the near trade, orders are confined mostly to those goods required for immediate use. The frosts of a few days ago we do not think have injured vegetation very materially and in a short while this section will realize the cash proceeds of their early vegetable and fruit crops.

Collections are fair and nothing special to report in regard to prices.

Louisville.

W. B. BELKNAP & Co.—The local situation has been somewhat affected by the unusually severe and protracted dry spell, which has cut off navigation on the upper Ohio. The mills near by, consequently, are fairly well supplied with work, and are asking slight advances in most cases on Bar Iron, Sheet Iron, Cut Nails, &c.

Bar and Sheet are quotably \$1 per ton higher. The financial situation, while comfortable locally, is not easy enough to tempt the investment of capital in new enterprises, or even a liberal expenditure in old. Everybody is economizing and buying light. There has been no heavy buying for a long time. This is of course a healthy process, and we shall get the full benefit of it after awhile. The crops still look well, though the early fruits and vegetables are being cut short for want of rain. The situation will be serious unless we are presently relieved. There is more or less complaint among consumers of the irregularity and gauge of Wire Nails. Even two consecutive shipments will vary and the result is more or less confusion. We think a uniform gauge should be established by the makers and maintained. Putting in any Wire that is handy to cut any lengths of Wire Nails will not answer in the long run.

Cleveland.

THE W. BINGHAM COMPANY.—The volume of business still continues to improve. Prices, however, do not keep pace with it, and are somewhat irregular. Orders for season goods are numerous, and all marked "rush"—Steel goods especially—and stocks are becoming rapidly depleted. The demand for Lawn Mowers is larger than for any previous season, owing, no doubt, to the extremely low prices at which they are being sold. Fence Wires, both plain and barbed, continue to sell freely, and the mills are much behind on orders, owing to the large demand and scarcity of Steel Billets, because of the Coke Strike. One mill alone, that heretofore made its own Billets, has had to buy 8000 tons outside. Notwithstanding this, there has been no material advance in prices.

The retail trade throughout the city is good, with the exception of manufacturers' supplies. Those dealers who handle Refrigerators, &c., are particularly busy. The action of the City Council in reducing the price of gas from \$1 to 60 cents per 1000 will undoubtedly stimulate the sale of Gas Stoves, which have already been largely sold by many retail dealers. Even with gas at \$1 they were considered economical to use. Rain is badly needed through this section. The want of it may have its effect on trade later on.

St. Paul.

FARWELL, OZMUN, KIRK & Co.—The volume of trade continues large, and seasonable goods are moving as well as could be expected. Barb Wire is scarce. The mills are behind in shipments, and the demand for same is larger than ever before. Slow shipment from the factory is causing a great deal of inconvenience and annoyance to the trade. Mills report the largest output ever known in their history. Prices are being maintained, as a rule, and it would look as if the advance had come

to stay. Just at present this country needs rain to help on the crops, and should we get a fair amount of moisture they would be almost insured. In the Red River Valley sufficient moisture has fallen to put them in first-class shape. The Dakotas have had their share early in the season, but now want a little more to put the crop in good condition. On the whole, the business outlook is the best it has been in this section for five years. We have to report collections very good for this time of the year—somewhat in excess of last season at this time. There seems to be a return of confidence, which is very pleasant to note, among the dealers in general throughout the country.

New Orleans.

A. BALDWIN & Co.—There is nothing worthy of note in the situation here or in the Southwest. It is almost at a standstill, without one redeeming feature. Our business is about on a par with last season, but there does not seem to be any life in it, simply a question of piecing up stocks from day to day, as a demand may arise. The uncertainty in regard to the coming crops has had this effect.

Boston.

BIGELOW & DOWSE.—There is every indication that both the jobbers and retailers are doing a large business this month. The packing rooms are crowded with orders, and every one seems satisfied. The sales of some lines of goods are unusual, and many factories are running night and day and are still unable to fill their orders. This is particularly the case with the manufacturers of Window Screens. The trade commenced early and it is impossible to supply the demand. There is a scarcity of Painted Wire, and the factories are behind in filling orders for Barbed Wire. There has been an unusual demand for Galvanized Twisted Wire this year; it seems to be taking the place of Galvanized Ribbon. Some of the manufacturers are talking higher prices for Steel Cut and Wire Nails, on account of an advance of \$1.50 per ton on Bessemer Steel, but it has no effect on the price of either. The price of Nails was never as low as now, and notwithstanding the unremunerative prices, every one is anxious to sell. There is a slight improvement in remittances this month.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—The volume of trade during the greater part of the time since our last letter has been quite equal to that of the last two preceding weeks, and at this writing there appears to be no great diminution in the volume of trade. There is quite an activity in trade circles, and most of the jobbing houses appear to be working to the extent of their help. In our former letter we predicted there would likely be a scarcity of some kinds of leading season goods, which is the case at present with Ice-Cream Freezers, Screen Doors, Window Screens, Green Wire Cloth, Poultry Netting, Barb Wire, &c. The manufacturers of Common Car-

riage Bolts appear to be depending upon their daily production to supply the present demand. Some of the manufacturers of Files are behind their orders, and manufacturers of Edge Tools are worked to their utmost capacity to supply their orders. It would be well if the trade located in the interior towns and cities could realize the difficulty under which the jobber frequently labors at times of scarcity in seasonable goods, although he may watch his stock with the eye of an eagle, and with the same eye see that additional orders are specified with the manufacturer long before the customers are aware of any scarcity being likely to occur. Then when the stock of these season goods can no longer be maintained, how they pick up the goods from neighboring houses, and occasionally from neighboring and sometimes distant cities, in emergencies of this kind, and furnish them to their customers with those bought from second hands without profit. These difficulties are never told their customers, who naturally think all that is necessary after receipt of an order is to place it in the hands of an "order man," and have the goods shipped at once. What a mistaken idea! There is not a jobber in the country who can so anticipate his entire orders for the season as to enable him to place in a stock of bulky seasonable goods, like Window Screens, Screen Doors, Ice-Cream Freezers, Hose Reels, Hay Forks, Hay Rakes, Poultry Netting, Barb Wire, &c. Bulky goods of that kind would require additional room equal to his own warehouse, unless he depended to some extent upon orders placed with manufacturers early in the season, and simultaneously with this contract arranged for later deliveries. The cases referred to are where manufacturers are not able to keep their contracts of delivery, and cases of this kind are where the interior towns naturally think they have just cause for complaint occasionally.

The introduction of a stock company system, which has recently been adopted in our city by two of the largest manufacturers in their own lines in our city, if not in the country, has been widely discussed, and usually with favorable impressions, and the disposal of the stock has been a phenomenal success, coming at a time when failures of financial corporations or firms have made investors timid, at a time when inflated railroad stocks at their watered valuation are uncertain investments, although the present abominable, ill-conceived, if not unconstitutional. Interstate law may for the present enable managers to pay legal interest on investments, and at a time when recent developments in our own as well as other cities show that it is possible for bank officials to completely loot even a national bank, and coming at a time when it is being made evident that far-off Russia, calling upon her Continental neighbors for gold held in her vaults, can cause inconvenience, if not serious results, by indirectly getting gold from our country at the rate of almost \$1,000,000 per day. These results naturally affect to a great extent the stock

values of every national bank and trust company or railroad stock in the country, and should it be necessary to at once realize on them, a loss would naturally be sustained. It is natural, therefore, to predict that large industrial manufacturing and mercantile enterprises, on the plan of preferred accumulative dividends, are likely to become popular in this country, as they have been for many years in foreign countries. The only fear and danger of success of companies of this kind may be a change of management, perhaps without judicious selection.

It is a well-known fact that the two great causes of mercantile failures in our country have been insufficient capital and incompetency on the part of those who managed the business; and the failures from other causes, like extravagance, speculation or rascality, are comparatively few as compared with the two former, but recently developments in financial banking appear to be developing the fact that failure is more frequently from one or the other of the last three named. With abundant capital many a mercantile house has been quite able to tide over any temporary dull trade. They can tide over for a time incompetent management, but with the other causes of failure a bank or trust company can be completely looted. Collections are but moderately fair and from some sections far behind the average. Some sections, for reasonable causes, are very naturally asking for extension of time, which is being granted when necessity of the case compels. Banks are husbanding their resources and are discounting with great care and in a limited manner. Should the shipments of gold abroad cease or be reduced one-half, banks would not feel the same necessity of holding a large reserve well in hand. With the present settled weather, however, trade should continue satisfactory for some weeks. The present appearance of a good local fruit yield and a good crop are encouraging signs for the future. Excessive and unusual rains in the cotton sections during the planting season retarded operations there for ten days or two weeks, as plowing during the rainfall was not possible, but the reports from these sections are encouraging. There will likely be increased yield of tobacco in our State this year, owing to the encouragement of unusually high prices which were obtained in the year 1890, and a hopeful feeling exists for the future.

Notes on Prices.

Wire Nails.—Since our last report there has been a fair activity in Wire Nails and a good many orders of considerable size are reported to have been placed. The price, however, shows no improvement. While we still name \$2 as the price for carload lots, at mill, this figure is shaded in special cases. The ruling quotations are evidently regarded by some large houses as safe ones at which to purchase, and although the market gives no immediate indication of an advance, the trade would not be surprised if there

were soon a slight recovery from existing low prices.

Chicago, by Telegraph.—Iron Wire Nails are still being offered by manufacturers at very low prices, but it is the general opinion now that the market has seen its worst and must soon improve. The volume of inquiries is reported to be increasing, and latterly quotations have been asked for by telegraph. There is some prospect now of labor troubles at the various factories after June 1, which may interfere with production. The workmen are making demands which the manufacturers are not willing to concede, and a united stand may be made by the latter. It is known that at some of the factories preparations are being made for extensive repairs in July, as though a shutdown at that time was deemed certain. The jobbers now quote \$2.20 from stock, with the usual reduction for carloads.

Cut Nails.—Steel and Iron Cut Nails are being offered at various prices, some of which represent slightly lower figures than those ruling a week ago. There is some unevenness in the quotations made by different mills, but \$1.55 is regarded as a fairly close quotation for round lots at mill, but it is reported that this figure has been shaded by some of the mills. But \$1.60 is in some cases demanded.

Chicago, by Telegraph.—Steel Cut Nails are firm as compared with Wire Nails. Manufacturers appear to have struck a point below which they will not go. The demand is light, but they are disposed to wait for developments instead of further trying to force trade. Jobbers quote \$1.80 from stock.

Barb Wire.—The Barb-Wire market is evidently very firm in price, the manufacturers maintaining the quotations determined upon with substantial uniformity. Nearly all the mills are running full, and there is some complaint on the part of the trade of difficulty in obtaining Wire, a difficulty which, by the way, is said to be greater in the case of old orders than those which were placed at the present advanced prices. Quotations are on the basis of \$3.50 for Four-Point Galvanized and \$2.95 for Painted, with the regular abatement of 10 cents for carload lots and 5 cents for jobbers and railroads; terms 60 days, or 2 per cent. discount for cash in ten days, with delivery at leading points.

Chicago, by Telegraph.—Barb Wire is again quiet in the jobbing line, which is due to the slack demand from farmers, who are now busy seeding. Prices are unchanged.

Glass.—There has been little change in the Glass market since our last report. The demand continues comparatively light, caused to a great extent by labor troubles. It is stated that Pittsburgh factories are sustaining market quotations of 80 and 10 per cent. discount for carloads, less than car lots 80 and 5 per cent. New Jersey factories are reported as quoting 80 and 20 to 85 per cent. discount, and also of selling to retailers at nearly as low a price as they favor jobbers with. It is reported that several French Glass factories have closed

down, either on account of strikes in the coal districts, which would cut off their supply of fuel, or on account of trouble among the Glass operators themselves. Advices from France are anxiously awaited as to the truth of these reports, while speculation is indulged in regarding the effect that an advance in the price of foreign Glass would have upon the price of American Glass. As pointed out in our report a few weeks since, the net prices of second quality French and first quality American are not far apart at present discounts. Prices remain unchanged and are quoted as follows: American Window Glass, for carloads, 80 and 10 per cent. discount; less than car lots, 80 and 5 per cent. discount; French Window Glass, 75 and 10 per cent. discount, with an additional 5 per cent. discount when 50 boxes are ordered and taken in any calendar month. American Plate is held at discount 50, 10 and 5 per cent., and Imported Plate at discount 60 per cent. It is understood that the manufacturers interested in the American Window Glass Company held a meeting in Chicago on the 20th inst.

Cordage.—As we go to press we learn of a reduction of $\frac{1}{4}$ cent per pound in the price of Manila Rope, Sisal and New Zealand remaining as before. The manufacturers' quotation now on large lots of Manila is $9\frac{1}{4}$ cents per pound. Besides this reduction there has been no important change in the market, prices continuing low and somewhat irregular, with very animated competition between the National Cordage Company and the outside makers. The following are the base prices on large lots of Cordage:

Manila.....	\$0.09 $\frac{1}{4}$
Sisal.....	.08 $\frac{3}{4}$
New Zealand.....	.06 $\frac{1}{2}$

Wrought-Iron Pipe.—There is some complaint of irregularity in price, but, on the whole, the market is in a better condition than it has been for some time, and prices are well maintained on the following basis:

	Discount.
Butt, Black.....	55 %
Butt, Galvanized.....	45 %
Lap, Black.....	65 %
Lap, Galvanized.....	52 $\frac{1}{2}$ %
Boiler Tubes, 2 $\frac{1}{2}$ inch and smaller.....	55 %
Boiler Tubes, larger than 2 $\frac{1}{2}$ inch.....	60 %
Casing.....	55 %

Binder Twine.—The Binder Twine market is still in an unsettled condition, owing largely to the fight which is being carried on by the National Cordage Company. There are rumors among the trade as to what the National Cordage Company are doing or are going to do, but upon investigation they prove mere conjectures. There is no inducement for mills to lock up capital in Twine which can be used for nothing else if they are obliged to carry it over until the following season; neither is the price at which Twine is now selling profitable to manufacturers. There are a large number of Twine factories which are not now running, and there is a limited amount of Twine in the hands of jobbers. There will doubtless be, on the other hand, a large demand for

Twine, as a large crop of wheat is already assured, and it would appear that when the rush comes just before harvest prices would advance. Indications are that prices for Twine will be no lower this season. Several shipments of Twine are reported thus far this week, with an increased number of inquiries. Jute Twine is practically knocked out by the low price of Sisal. The following are the New York market quotations for ton lots:

Manila Twine, per pound.....	\$0.11
Sisal " ".....	.08
Jute " ".....	\$0.05 $\frac{1}{4}$ @ .06

Can Opener.—The Electric Rotary Expansive Can Opener put on the market by Alford & Berkele, 77 Chambers street, New York, and illustrated on a following page, is sold to the trade at \$9 per gross.

Fly Fans.—The revolving Disk Fly Fan put on the market by Wrenn, Whitehurst & Co., Norfolk, Va., and illustrated in our last issue, is sold at a list price of \$5, and their prices to the trade are as follows, f.o.b. cars, Norfolk, Va., 60 days, or 2 per cent. discount for cash in 10 days:

	Discount. Per cent.
Orders of 12.....	25
Orders of 24.....	30
Orders of 48.....	35
Orders of 96.....	40

The goods are packed in cases of 12 each.

Neck Yokes.—We are advised by Samuel R. Mott, Jr., Rochester, N. Y., that his Indestructible Neck Yokes, a description of which was given in our last issue, are sold to the jobbing trade at the following prices:

	Per dozen.
40-inch Yokes.....	\$5.00
48-inch Yokes.....	6.50

These Yokes are referred to as retailing at \$1 and \$1.25 respectively. The trade are furnished with small models about 12 inches long.

Foreign Trade.

POLHEMUS LYON of Sherman & Lyon, 100 Chambers street, New York, as foreign representative of *The Iron Age* and a number of leading manufacturers, sailed yesterday for an extended trip around the world with a view to the development of the export business of those whom he represents. Mr. Lyon first visits Europe, where perhaps a couple of months will be spent in Great Britain and the Continent, when his route will take him to South Africa, where several months will be spent, when he will go to the Australasian Colonies. After some time in Australia and New Zealand he will return homeward by way of South America, visiting both the east and west coasts. This extended tour is expected to occupy from a year and a half to two years, and will give Mr. Lyon an opportunity of cultivating thoroughly the important markets which he visits.

It is obvious that Mr. Lyon enters upon this tour under exceptionally favorable circumstances. Our readers will recall the fact that a few months ago Mr. Lyon

completed a similar tour, which gave him, with his habits of close observation and trained business experience, a familiarity with the field and work, and put him in possession of knowledge which has been, he advises us, of very much service in making his arrangements for the more extended enterprise in which he has now embarked.

The line of goods which will thus be brought by Mr. Lyon to the attention of foreign buyers includes those of a number of the most prominent American manufacturers, and the recognized position occupied by these goods, and the extent of their variety, will doubtless secure for him an attention which could not be expected if the line were less interesting and impressive. He will be accompanied by his brother, Wilson Lyon, who will doubtless be of much service in attending to the details of his varied and somewhat complicated enterprise.

Arthur G. Sherman of Sherman & Lyon has been for some time giving attention to export trade, in connection with the representation of a number of leading Hardware houses, as their New York buyer, and the partnership with Mr. Lyon and his foreign tour may be regarded as an important development of this part of the business. Thus, while one member of the firm will be abroad in the interest of their clients, their business here will be under Mr. Sherman's efficient management. They are also intending to give increased attention to a general export commission business with foreign buyers. We are also advised by them that they will be pleased to hear from any manufacturers who wish to have their products represented in the different countries which will be visited by Mr. Lyon, and to receive consignments of goods for Mr. Lyon's disposal.

As the representative of *The Iron Age* Mr. Lyon will make arrangements for the further extension of its circulation in foreign countries, where our subscribers already include most of the leading buyers interested in the lines to which the paper relates. He will also advise us regularly in regard to export matters as they come under his view, and we anticipate the pleasure of giving our readers the result of his observations, as they are described by his facile pen.

Simmons Hardware Co.

THE TRADE will regard with much interest the announcement on another page relating to the capital stock of the Simmons Hardware Company of St. Louis, of which \$1,000,000 preferred cumulative 7 per cent. stock is offered for sale. The information which is given in regard to the business of the company and their profits during the past five years will be read with especial interest. It will be seen that the sales for 1890 are reported to have exceeded \$7,000,000 and that the average profit for the past five years has been over \$250,000. In putting this stock upon the market, the history of the company since their organization in 1874 and their earlier history when the business was conducted as a partnership, from 1865 to 1874, is referred to, as well as the pre-eminent position occupied by the company in the Hardware

trade, and it is stated that the company, who are now managed by their originators and incorporators, will continue under the same management for at least five years, with the agreement that they will not engage in any competing business for a period of ten years thereafter. The directors of the company are E. C. Simmons, I. W. Morton, R. H. Stockton, J. E. Pilcher, H. M. Meier, A. E. Dann, J. E. Smith and C. D. Smiley. The customers of the company in 1890, it is stated, numbered over 20,000, and the business of the company in 1890 was 15 per cent. more than any previous year, and already shows an increase this year of 10 per cent. over the same period of 1890. As noted above, it is only the preferred stock which is offered for sale, and it is intended that the common stock shall be distributed as widely as possible among those actively engaged in the conduct of the business, as far as practicable, and among the traveling salesmen now representing the company.

Trade Items.

ANNOUNCEMENT is made that the business, stock and manufacturing plant of Travers Bros., 107 Duane street, New York, has been disposed of to a new firm, under the style of Travers Bros. Company, who have assumed the assets and liabilities of the former concern. The management of the new company will not be materially different from that of the old, and the officers and heads of departments are as follows: F. C. Travers, president; A. F. Travers, vice-president; V. P. Travers, treasurer; F. M. Hart, secretary; S. L. Willard, manager manufacturing department; A. O. Rood, superintendent hammock department; and John C. Foley, manager sales department. The trade will thus observe that the members of the late firm have associated with themselves in the new company their old and tried employees and placed them at the head of the various departments.

A. B. FOSTER has been elected general manager of the Cleveland Electrical Mfg. Company, Cleveland, Ohio, Jas. L. Daugherty having resigned the position. The catalogue of the company gives a full description of the American Watchman's Time Detector, which they are manufacturing.

THE PENNSYLVANIA SUPPLY COMPANY, Wilkesbarre, Pa., announce under date May 9 that Fred. F. Turner has severed his connection with that company.

L. M. DEVORE & Co., Freeport, Ill., are about putting on the market a Double Key Ring, which is referred to as having none of the disappointing features found in the old style rings. It is entirely new in design, and adapted for receiving keys of all sizes.

ONE OF OUR exchanges refers to John F. Thomas & Sons, York, Pa., wholesale dealers in Hardware, &c., as doing a jobbing business throughout Southern Pennsylvania and Maryland. Their store is 38 x 120 feet, three stories and basement, in which they carry a stock of over \$40,000. The business was founded in 1868 by John F. Thomas, senior member of the present firm, which has increased until its present proportions have been reached.

THE BISSELL CARPET SWEEPER COMPANY, Grand Rapids, Mich., are putting on the market a new Hall Sweeper. The manufacturers describe it as follows:

Bissell's New Hall Sweeper is twice the length of an ordinary sweeper, and of twice the strength; but it is just as easy-running, just as noiseless and dustless, and just as self-adjusting to every kind of carpet as every Bissell Sweeper is. It covers twice the surface and does almost twice the sweeping of a common house sweeper in the same time and with the same effort and the same convenience.

THE LINCOLN & WOOD COMPANY, Taunton, Mass., recently formed for the manufacture of Bit Stock Drills made from one piece of metal, announce that they are ready to furnish Drills to $\frac{1}{4}$ -inch, sizes beyond that, however, are not yet ready. The works are kept running night and day, and a full line is expected to be ready by the middle of June.

CUTTER & WOOD, successors to Union Stone Company, manufacturers of Grinding and Polishing Machinery and Supplies, formerly at 35 Arch street, Boston, Mass., moved to 131 Pearl street, where they have a much more convenient store and carry a larger stock.

AMONG THE SPECIAL NOTICES will be observed one relating to the fact that the machinery and dies of the late Beecher Mfg. Company of Meriden, Conn., are offered for sale. We are advised that the sale of these dies presents a favorable opportunity for any one to start in the manufacture of Carriage Hardware or to add to their line.

IN THEIR ADVERTISEMENT in this issue C. T. Williamson Wire Novelty Company, Newark, N. J., illustrate their Steady Ceiling Hooks, which are manufactured under Williamson's patent.

DUNNE CUTLERY COMPANY, Boston, call attention to their Belmont Dog Wash, which is claimed to be instant death to fleas and other insects. It is also recommended as a cure for mange, cuts, wounds, &c., in dogs, horses, cattle, &c. The wash is put up in convenient size packages and is manufactured by the above firm. Their advertisement relating to it will be found on another page.

T. F. CHERITON HARDWARE COMPANY have removed from 122 Chambers street to 62 Reade street, New York, where they will continue to handle the same line of goods as before.

L. S. STARRETT, Athol, Mass., in a circular states why he considers it to the interest of dealers in Fine Tools to carry a line of his manufacture. Among others, he gives the following reasons:

On account of the demand from the trade, I am now selling only through them, and refer all inquirers for Tools to the dealer in their locality.

I guarantee all Tools I make reliable and satisfactory. If any are found defective they are made good free of cost.

I sell to the trade direct, and make no jobbers' discounts, thus protecting the dealer against being undersold.

My discounts are uniform and liberal, paying dealers well to handle them.

ROBERT P. SCOTT of the Sinclair-Scott Mfg. Company, 233 Hamburg street, Baltimore, Md., issues a circular in which attention is called to the decision of the Circuit Court of New Jersey in his suit against Louis A. Sayre for infringing his Peach Parer patent, in which Judge McKennan decided in favor of the plaintiff.

WILLIAM H. BELCHER, manufacturer and importer, has removed from 121 Chambers street to 62 Reade street, New York, where he will continue to represent the same interests as heretofore.

HOLMES & EDWARDS SILVER COMPANY, Bridgeport, Conn., are calling special attention to their Lemon Knife, No. 12. This Knife is drawn to a point that the tough skin of a lemon may be the more easily punctured, and also to facilitate the removal of seeds when the lemon is cut. The Knife is described as made of the best forged steel, plated 12 pennyweights pure silver per dozen.

WYETH HARDWARE AND MFG. COMPANY, St. Joseph, Mo., advise us that they have purchased the wholesale stock of Hardware formerly owned by Shultz & Hosea of that city, the value of which is

between \$150,000 and \$200,000. The goods thus purchased will be merged in the regular stock of the company, who will, we are advised, give their customers the benefit of the purchase. This purchase, which indicates the enterprise of this company, apparently puts them in a position to offer an enlarged line of goods at advantageous prices.

GEORGE GRIFFITHS COMPANY, Philadelphia, are calling special attention to their line of extra crucible cast steel Railroad Shovels, which they refer to as largely used by many prominent railroad companies and contractors in this and other countries. They also issue circulars relating to their smooth back socket strap Grain Scoops, Northwestern pattern and Western or Pittsburgh pattern. They are also prepared to push for fall trade their double-seam bottom Coal Hod, a specialty of theirs to which they are giving particular attention.

THE ADVERTISEMENT of E. T. Barnum, Detroit, Mich., calls attention especially to his Artistic Wire and Iron Work, including Lawn Furniture, Lawn Vases, Statuary, Fountains, Iron Chairs and Settees, &c.

IN HIS ADVERTISEMENT in this issue Grant McNeil, 148 N. Main street, Akron, Ohio, illustrates his Rolling Mill Barrows and calls attention to his new catalogue with photo-engravings.

THE STOCK AND BUSINESS heretofore conducted by Ghelfi & Droscher, at 58 Warren street, New York, importers of Oil Stones, Razor Hones, Scythe Stones, &c., has been purchased by Chas. J. Healy, 106 Chambers street. Mr. Ghelfi returns to Europe in the interest of Mr. Healy as sole purchasing agent, while Mr. Droscher becomes identified with Mr. Healy's business and will give his undivided attention to the trade of the former firm.

AT A MEETING of carriage makers held at the Southern Hotel, St. Louis, on May 15, a Wheel company was formed in opposition to the American Wheel Company. Among the manufacturers represented at the meeting were the Moline Wagon Company of Moline, Ill.; D. M. Sichler Carriage Company of Freeport, Ill.; Keys Brothers of Council Bluffs, Iowa; Metcalf & Mackay of Cincinnati; Moon Brothers, St. Louis; Bauer Walter Carriage Company, St. Louis; St. Louis Carriage Mfg. Company, and M. B. Mahurin, Indianapolis. A company to be known as the Mutual Wheel Company, with a paid up capital of \$40,000, was formed. It was decided to erect a factory at Moline, Ill., with a capacity of 30,000 sets of Wheels a year. D. M. Sichler of Freeport, Ill., was made president, M. Rosenfield of Moline, treasurer, M. B. Mahurin, secretary.

ONEIDA CHUCK MFG. COMPANY, Oneida, N. Y., call attention in their advertisement in this issue to their new Chuck, an illustration of which is given.

THE BELT STUDS formerly manufactured and sold by the D. A. Woodhouse Mfg. Company, 12 Barclay street, can now be obtained of Charles J. Healy, 106 Chambers street, New York, the latter having purchased the stock. Mr. Healy states that the goods will be put on the market as heretofore and that the high standard of these Studs will be maintained.

Price-Lists, Circulars, &c.

THE WILLIAM ROGERS MFG. COMPANY, Hartford, Conn.: An elaborately illustrated catalogue and price-list, of over a hundred pages, devoted to the Rogers brand of Electro Silver Plated Ware. They state that they have discontinued some of the styles shown in

previous catalogues, and have largely added to their assortment. This edition indicates in part the variety they now furnish. Flat Ware and Cutlery are shown in small catalogues, while this catalogue is devoted to Hollow Ware and White Metal goods. These goods are shown in a large variety of handsome designs, embracing articles for a great number of uses.

WILLIAM P. KELLOGG, Troy, N. Y., for whom Fuller Bros., 33 Chambers street, New York, are agents: Circular illustrating his No. 1400 Curry Comb. It is described as extra heavy all steel, having forged-steel shank running through handle and riveted. Special claims are made as to its strength, quality and finish.

GEO. N. PIERCE & CO., Buffalo, N. Y., notify the trade that they have now ready for the market a 20-inch Queen City Safety. They state that this machine is not being put on the market as the cheapest that can be made, but they do claim that it is strong, substantially built and pleasing in appearance.

WYETH HARDWARE AND MFG. COMPANY, St. Joseph, Mo.: Circular price-list of manufactured Tinware. This includes Plain and Japanned Tinware, Black and Galvanized Iron Ware, of over 30 pages, with illustrations and price-lists.

FOSTER, STEVENS & CO., Grand Rapids, Mich.: A budget of circulars illustrating and giving list prices of Bicycles, Lawn Mowers, Ice-Cream Freezers, Barrel Churns, Farm Bells, Post Diggers and Sure Grip Board Rule Handle.

SEAVEY MFG. COMPANY, Boston, Mass.: Deep Stamped, Retinned and common Stamped Ware, Japanned, Planished, Copper, Pieced Tin and Sheet Iron Ware, Patent Spring Lever Registers, Tinmen's and Kitchen Furnishing Goods. Their 1891 catalogue and price-list has the goods arranged in departments, and is indexed according to departments. This facilitates turning to any line of goods desired, and thus increases the usefulness of the work.

TRE PRINCE METALLIC PAINT COMPANY, Chicago, Ill.: Metallic and Oxide of Iron Paints in five distinct colors, a rich brown, reddish brown, bright red, steel blue and black. The claim is made that these Paints are water proof, weather proof, fire proof, and that they never crack, blister nor peel. They are referred to as especially adapted for freight cars, tin, zinc, copper, iron, shingle and board roofs.

E. C. MEACHAM ARMS COMPANY, St. Louis, Mo.: Bicycles, Tennis, Tricycles and Guns. Their catalogue No. 447, under date May 6, is devoted to illustrations, price-lists and descriptions of these goods for the season 1891. Discount to the trade is given on accompanying slip.

LUDLOW-SAYLOR WIRE COMPANY, St. Louis, Mo.: A circular illustrating a variety of their Metal Work, and calling attention to the fact that such work is furnished in any style desired, polished or antique, gold, silver, copper, brass and bronze. All kinds of plating also are done to order.

YAWMAN & ERBE, Rochester, N. Y.: The Fisherman's Automatic Reel. The Reel is put together on the rod below the hand, in which case the brake is manipulated by the little finger of the hand holding the rod; or it can be placed on the rod so as to be controlled by the forefinger. The manufacturers claim, among other things, that it will wind up the line a hundred times as fast as other reels; that it will wind up the line slowly if the angler chooses; that no fish can ever get slack line with it; that it will prevent tips, lines and snells from being broken by large fish, and that the Reel is manipulated entirely by the hand that holds the rod. Attention is directed to their advertisement on another page, where further information is given in regard to their goods.

Trade Topics.

WE HAVE recently received from subscribers a number of suggestions and inquiries in regard to matters of general trade interest, some of which we take pleasure in laying before our readers, from whom we shall be glad to hear in reply. In this connection we take the liberty of repeating what we have said before, and we trust is generally understood by the trade, that we shall be glad at any time to hear from them in regard to any trade topics:

Size of Catalogues.—Referring to the inconvenience experienced from the existing diversity in the sizes of circulars, price-lists, &c., a Hardware house in Ohio writes as follows suggesting a method by which a standard size might be determined. We shall be glad to have the views of our readers on the subject:

Permit me to give you a pointer which will, I am sure, lead to a much-needed reform in a line of goods which are certainly very expensive to get up and put out and which, owing to lack of uniformity of size, fail to accomplish their purpose in seven out of ten cases. I refer to catalogues and price-lists. Now for the reform. Let *The Iron Age* invite the opinion of its advertisers as to what would be the proper size of such matter. Then take the opinion of the majority and let that be the standard size, and have eyelet holes in specified places, so as to allow of stringing or binding together, and my word for it, the rest of the manufacturers will see that it is to their interest to be in it. The amount of money spent hitherto in the old way is simply frightful, and any business man can testify to the fact that a great deal of it is wasted, for tons of printed matter are dumped into junk shops that would under my plan be preserved to fulfill their mission.

Department Stores.—Writing on this subject a well-known Hardwareman of Minnesota refers to the tendency toward the establishment of department stores and the centering of business in comparatively few hands:

I would like to ask every one of your readers "if no system can be devised to restrict the almost unlimited bounds of present credit, except the inevitable financial crash?" And will the department store become the store of the future, or will there be a reaction and each prominent division of industry return to its separate channel? No one can fail to see that the present outlook is wholly in tendency toward the former and in direct line of the combination of all trade and manufacture into a few controlling hands. It is the truth to-day, and we retailers may as well look it square in the face, that the manufacturer sells the department store cheaper than he does our jobbers; and our country customer gets from it the single article he needs at a price less than we pay by the dozen. Where are we?

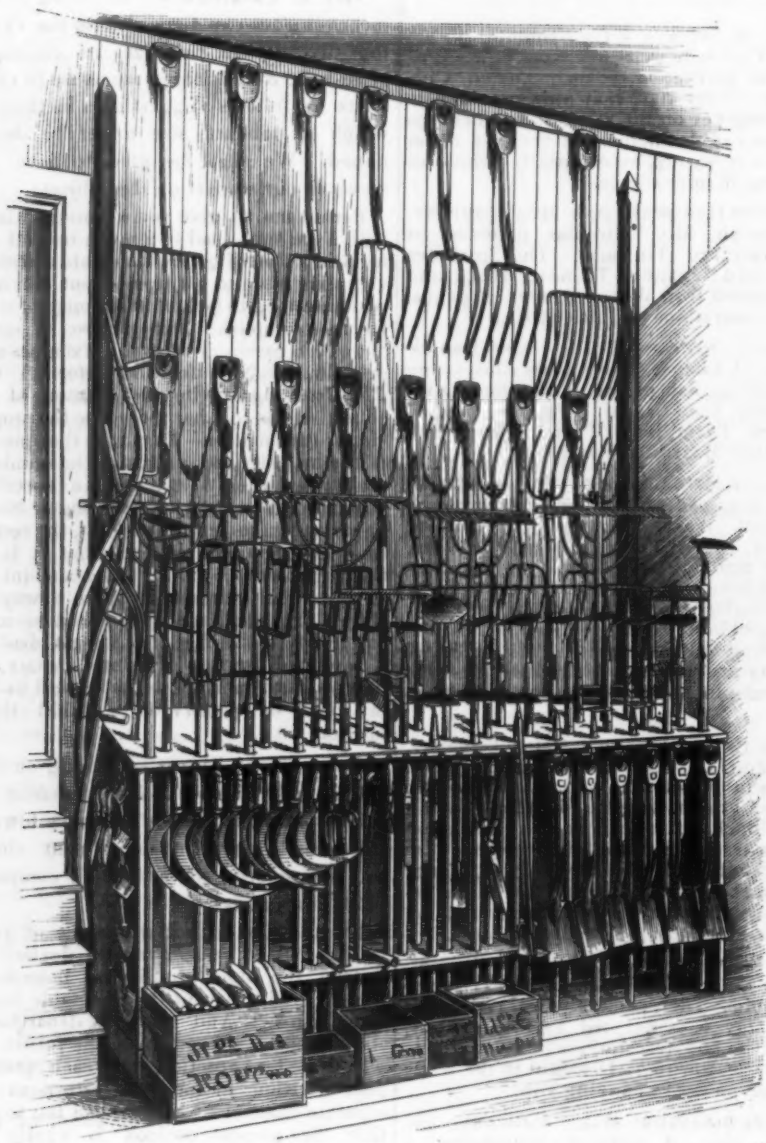
Sharpened Spades.—We are in receipt of the following inquiry from a Hardware merchant in Iowa:

Why do not manufacturers of Spades, Shovels and Hoes pay more attention to finishing their goods, and put them on the market all sharpened nicely, with handles well oiled and ready for business? As it is now, a customer comes in to the retailer and wants a sharp Spade. The retailer has to furnish a file, a vise and his time in order to make a sale. Could not this evil be remedied with but little trouble at the factory?

Steel Goods Rack.

WE REPRODUCE in more distinct form an illustration of the sample Steel Goods Rack which was given in our issue of April 23. Owing to the large edition of *The Iron Age* and the rapidity with which it is printed, the results of the half-tone engraving were not satisfactory. The Rack, however, has so much merit that we reproduce it in a clearer cut. This Rack has recently been placed in the store of Underhill, Clinch & Co., 94

the long-handled Forks. There are 50 $1\frac{1}{4}$ inch holes in the upper shelf and a corresponding number in the shelf below, through which the handles of the various goods are passed. The short-handled goods rest upon a platform under the lower shelf, while the long handles stand on the floor. Space is left on the upper shelf for displaying samples of Scythes, Corn Cutters, &c. Brass screw hooks are used on the ends and front of the upper shelf, on which are hung smaller tools. The shelves and end pieces are made of 1-inch



Steel Goods Rack for Samples.

Chambers street, New York, and as a convenient and inexpensive store fixture recommends itself. The upper shelf is 2 feet wide and 9 feet long, slanting from back to front, supported by uprights at each end. The tall pieces at each end are 4 x 4, fastened to the wall, and extend nearly to the ceiling. The upper shelf is $3\frac{1}{4}$ feet from the floor at the front and 4 feet at the back. The lower shelf is level, and is 1 foot from the floor. Between the back of the upper shelf and the wall a space of 5 inches is left for the handles of the long-handled Forks, which are suspended on hooks against the wall. The D-handled goods are hung on small harness hooks, while two wardrobe hooks are allowed for

pine, finished in natural wood. A similar rack could be used to sell from in a retail store, and could be built with little expense, and would require but little experience in the use of tools.

Methods of Circularizing.

BY A. F. G.

THERE APPEARS to be an increase in the amount of printed matter distributed by manufacturers and jobbers, of circulars calling special attention to certain lines of goods or single articles which they desire to place prominently before the public. It is a well known fact that unless such matter presents an

unusually attractive appearance, is serviceable in form, or from some other cause arrests attention when received, it finds its way to the waste basket, or is used for other purposes without perusal. The Colby Wringer Company, Montpelier, Vt., issued a most strikingly novel pamphlet some time since, with the title in prominent red letters: "Facts Wrung Out and Hung on a Line," printed on the front page of the cover. The letters of the four last words of the title are fastened by clothes pins to a line between two posts. The introduction which follows clearly states what advertising matter should not be, also what it should consist of:

Facts wrung out and hung on a line. Yes, but not to dry. Dry facts, who wants 'em? Good to kindle the fire with, if they're printed, and that's all. You don't want them reeking with words either. You can't handle them conveniently in such a condition. But just nicely wrung out—that's the shape—then hung on a line, one after the other, in full view.

The book is filled with unique, attractive illustrations of various articles hung on lines, which serve to make more pointed the distinctive features of their Wringer. For instance, a gentleman's turn-down collar hung over a line is accompanied by these words:

A collar if you please, but none of your high stiff chokers, rather an easy comfortable one.

The illustrations are so fantastic, the descriptive matter of each so interesting, that the reader is allured from one to the other of the 16 pages, and when the end is reached it must, indeed, be a skeptical mind that is not thoroughly convinced of the soundness of each conclusion drawn.

SIMMONS HARDWARE COMPANY, St. Louis, issued, a month or two ago, circulars of Rochester Lamps with illustration, description and retail prices, showing different cuts on both sides of the sheet. But the special feature of these circulars was that at the bottom of each was a perforated slip giving special price for dealers only, with instructions to tear off this special slip and show only the regular price to customers.

JAMES & MAYER BUGGY COMPANY, Lawrenceburg, Ind., recently sent out an advertising circular with illustrations on the company's letter heads in typewriter letters in which they discourse in this free and easy manner:

Well, here we are in our new factory, happy as pickaninnies eating water melons. We are feeling good, because we have got away from the dust and smoke and out into the clean, pure air; because we now have room to stretch our arms when we yawn without the danger of dislocating a finger joint; we only run this risk on the days when you fail to remember to send us your orders. Don't let it occur often. On the other days, when you and some of our other friends visit us through the mail, we have to stretch our legs instead of our arms, rushing through the factory, pushing, crowding, hurrying, forging, planing, boxing, painting. This is when we feel like two-year-olds, and get over the ground accordingly. Come and help along the fun. If you cannot spare the time, put a 2-cent

stamp on the outside of an order and drop it in the mail. You have no idea how we will appreciate it.

A. J. JORDAN, St. Louis, Mo., employs this terse and alluring language in a circular letter, to introduce himself and his Boxwood Handle Butchers' Knife. He writes:

As I manufacture goods that will support your reputation and add to mine where they have not yet been sold, I beg to introduce myself and my Boxwood Handle Butchers' Knife. I am making something in this line exceptionally fine, not putting in material that is ordinarily used for even good Knives, but such that I am sure will show itself superior when used. I would be pleased, with your permission, to send you a few half dozens of the leading sizes. Will put each size up in a neat, clean box, which, when all sampled up in your show case, will make a most attractive display, and, I believe, secure you the butchers' trade at a good, stiff profit, which is difficult to make on goods that every dealer carries. Furthermore, if you will send me the names and addresses of a dozen butchers, restaurants, cooks or other consumers that you would like to have a little pressure brought to bear upon, I will write each one a letter calling attention to your stock of them, and give each a guarantee of quality. I will also make it clear to them that as they are specially fine goods they are consequently high priced, and prepare the way for you to make a good profit.

P. S.—As I am not doing this for fun, I inclose stamped envelope for reply.

These examples of popular ways of advertising are given as embodying the essential qualifications, each in its own way, to make printed matter prominent among the mass of circulars and price-lists which comes to the hands of business men. Manufacturers and merchants looking for business in this way will appreciate the fact that to make the money count which is put into such matter it must be attractive. Time and thought, resulting in original and striking methods, and brittle, crispy wording, cannot fail to attract attention and be effective in their way.

Perhaps the instances mentioned above may be suggested to some Hardware manufacturer who is thinking of getting out another circular.

Coupons Substituted for the Ledger.

A CORRESPONDENT in a recent issue of one of our exchanges gives a few hints in regard to merchants doing a credit business which may be of interest to the Hardware trade. It will be seen that the writer favors some modification of a strictly cash business. He says:

Everybody who reads a trade paper has, at some time or other, seen a communication from some happy grocer who had been running a credit business, but had finally determined to abandon the same and transact his business strictly on a cash basis. He will tell you how happy he is now; how much better able to sleep at night, and how promptly he can pay his debts. He will not tell you, however, how many of his best customers he has lost, how much work has to be done for literally nothing, and how much time he loses trying to convince the public at large that because he does a cash business he is not solely carrying it on for their

benefit, and after a year's business he will find that he has bettered himself very little, if at all. The thought that no man owes him anything and that he could wind up his affairs in a week's time will give him some comfort, but we all know that without any risk very little can be looked for, and a cash grocer certainly takes no risk.

He further considers that if the merchant has the qualifications necessary to make a success in life the chance of being successful in business is good, even if a merchant extends credit to some of his customers. To be conservative in his credits, he states, is the first principle:

A customer who has traded with you for a short time only, and of whose circumstances you know nothing, is not entitled to credit. Do not be backward in asking such people for reference as to their responsibility; what means of support they have, &c., and always bear in mind that everybody who asks for credit is, in a certain sense, asking for a favor, and consider his request in the same light as though he asks you for \$20 or \$25 in cash, and if you decide that you would not care to loan him \$20, do not under any circumstances open an account with him in the hope that his account would certainly not exceed \$10 and he would surely pay that.

He mentions another so-called trouble arising from doing a credit business, as the inability to keep books correctly. To overcome this trouble he suggests adopting the coupon system. For the benefit of those who are not familiar with this system he gives this explanation.

Have a number of books printed with your name and address, and have the leaves perforated and a certain amount represented on each leaf. The total amount as represented by the book can be varied according to the demands of the trade. Thus, one may have \$10, \$25 and \$50 books. Let the amounts be arranged in such a manner so as to be able to make the correct change, and every time a purchase is made, have the customer tear the required amount out of his book and hand you the coupons in payment for his purchase.

With this plan in use, it is only necessary to charge the coupon book to the customer, instead of charging each item that is sold. The danger of having goods go out of the store without being charged is obviated, as the coupons are exchanged for the goods when they are sold. Additional security may be had by having a note signed by the customer at the time the book is given. The writer refers to this in the following manner:

I would also say in connection with the coupon system that it would be a great benefit to the dealer if he could prevail upon his customers to sign a note at the time the customer receives the book. Each book ought to have a note for its respective amount, together with legal interest, attached to it, and on receipt of the book the customer must be persuaded to sign that note. This closes the account at the time it is being opened and the dealer can number the notes and file them in some safe place. The advantage of this system is apparent.

A note duly signed and drawing interest is much better security for a debt than an open account. It is optional to the dealer whether to enforce the collection of interest or not. In fact, I think it would be best to waive the same in the case of regular prompt-paying customers but in the event of some delinquent customer permitting

his account to run four or six months, the dealer could enforce the payment of principal and interest much easier by having such a claim in the shape of a note. It is understood that should the customer at any time wish to make a settlement, he should only pay for the actual amount of tickets that he has made use of. Another advantage of this system is the compact shape in which you have the accounts. By examining your notes from time to time you can easily tell how many outstanding accounts you have, and at the same time you are not liable to overlook anybody who ought to be asked to settle.

Handling Bicycles.

IN THE FOLLOWING LETTER from a Pennsylvania Hardware house our correspondent refers forcibly to the disadvantages which are sometimes experienced in connection with the handling of Bicycles in a Hardware store:

"Illinois," in your issue of 7th inst., hits the nail on the head when he speaks of manufacturers granting Bicycle agencies to any one who applies for them. In a town of under 20,000 inhabitants it practically kills the trade for the dealer. We are well acquainted with the "smart young man," who, desiring a wheel for himself, works the agency racket. If two wheels are required to secure the agency a friend is very likely found who will take one. Thus, with the large number of makes, the town is flooded with agencies and wheels, while the dealer looks on, pays his license, which the "agents" are not required to, and sees the trade which rightfully belongs to him going to a lot of pirates. The only remedy we can suggest is for dealers to decline to deal with any manufacturer or dealer who sells to any one not rated in Bradstreet's or Dun's commercial agencies as Hardware or Sporting Goods dealers. Another objectionable feature of the Bicycle business is this. Perhaps some of your best salesmen get the craze, and ten chances to one, if they do, it will cause them to neglect your business and have your store crowded and their time taken up with loafers in the shape of their Bicycling friends. They are anxious to get away from the store to use their wheels, and their minds are so full of Ball Bearings, Tangent Spokes, &c., that little of it remains for their employer.

Protection for Retailers.

THE FOLLOWING circular is about to be issued to the trade by the Hardware and Stove Dealers' Association of New York and vicinity. The objects of the association are pointed out, and a desire expressed for the co-operation of retail dealers. We give it in full as relating to an important matter in which many of our readers are interested:

The objects of this association are protection and mutual benefits. The chief object among the many is to prevent if possible the manufacturers and wholesalers from retailing goods at any price. You no doubt have spent your time estimating to supply a builder with Hardware only to find that the manufacturer has agreed to furnish the goods at the price they cost you. You are also aware that the manufacturers will sell a Furnace, Range or Heater as cheaply as he will sell to you as a dealer. The wholesaler of House Furnishing Goods is also your competitor, likewise the dealer in metals. In fact, at every turn you are compelled to compete with unprincipled manufacturers and wholesalers, who stock you up and then

sell your customer. Are you satisfied with this treatment? If not won't you, if not already a member of this association, join it? In union there is strength, and by showing an undivided front we may compel these worst of all competitors to leave the field to us. The blacklisting of parties who contract bad debts with any of the members and refuse to pay is contemplated. The benefits to be derived from an association of this kind cannot fail to be seen and appreciated by the trade. This association is composed of retail dealers in Hardware, House Furnishing Goods and Stoves. The admission fee has been placed at \$2, and monthly dues 25 cents. Come to the next meeting, which will be held at Mechanics' and Traders' Exchange Rooms, 363 Fulton street, Brooklyn, opposite City Hall, Tuesday, May 26, 8 p.m.

Anglers' Contest.

STEWART, SMITH & BERGEN, Fort Plain, N. Y., are adopting a unique method of increasing their trade in sportsmen's goods as well as general Hardware. They do this by announcing an anglers' contest, and offer prizes, as described below, for the largest and greatest number of fish, &c.

PRIZES

For the season beginning May 1 and ending August 31, 1891:

For the largest brook trout, seven-ounce Fly Rod.

For the largest lake trout, Trolling Line and Spoon.

For the largest black bass, Bass Rod.

For the largest pike, Phantom Minnow.

For the largest pickerel, Nickel-Plated Reel.

For the greatest number of pounds of fish of any kind caught in the Mohawk River during the season, Fish Basket.

For the largest fish of any species caught by an editor, publisher or printer, a Landing Net.

A sumptuous fish dinner to the prize winners will be served free by A. W. Harrington at Hotel Grant, Fort Plain, N. Y., at the conclusion of the contest, Tuesday, September 1, 1891.

CONDITIONS.

Open to any resident of Montgomery, Herkimer, Fulton or Otsego counties.

All fish (except those taken in the contest for editors, publishers and printers) must be weighed at the store of Stewart, Smith & Bergen. The time and place where caught must be certified to by the one who makes the catch.

In the contest for editors, publishers and printers the fish may be weighed at any newspaper office in the counties to which the contest is confined, and the certificate of the editor, forwarded to us immediately, will be accepted. This contest to close August 25.

All fish must be taken with hook and line, and fish caught on Sunday will not be counted.

It Is Reported—

THAT D. J. Hanford, East Meredith, N. Y., has been burned out. Loss, \$500, no insurance.

That W. H. Blades will, on June 1, assume the management of the Chapin-Wells Hardware Company, Duluth, Minn.

Mr. Blades is an experienced Hardwareman, having been identified for many years back with some of the leading houses in the country, and it is expected that his sagacity and skill will contribute not a little to the future success of the Duluth house. Upon the advent of Mr. Blades, A. B. Chapin and H. A. Crawford will retire from active connection with the house.

That W. H. Kenyon & Son have succeeded Kenyon & Blakeslee, Hardware dealers, Sheldon, Iowa. Mr. Blakeslee having disposed of his interest to W. H. Kenyon.

That S. A. Johnson & Co., Hardware dealers at St. Charles, Minn., have been burned out.

That J. Feidt, Hardware, West Valley, N. Y., has sold out his business to Charles Groat.

That Edward Caskin, Derry, N. H., has sold his Hardware business in that place to Brown & Reed, formerly of West Boylston, Mass. Mr. Caskin will remove to Seattle, Wash.

That R. M. Wade & Co., Hardware, Salem, Ore., have increased their capital stock from \$50,000 to \$250,000. The object of this very material enlargement of capital is to extend their business of Hardware and Implements throughout the State. To accomplish this they will establish branch houses in the best cities of Oregon.

That Knight & Wall, Hardware dealers, Tampa, Fla., have decided to remove their business to larger quarters. They will on its completion occupy a new brick building, 60 x 90 feet, three stories and basement, which is being erected with especial attention to the needs of the Hardware trade.

That Nelson & Sorenson, dealers in Implements at Albert Lea, Minn., have been succeeded by N. C. Sorenson.

That the large Hardware store of Blich, Jones & Co., Statesboro, Ga., was destroyed by fire on the 8th inst. Loss, \$7500; insurance, \$4000.

That J. D. Harm has sold his interest in the Hardware stock of the Hoquaim Hardware Company, Hoquaim, Wash., to his partner, George W. Knapp.

That J. W. Ryan is the proprietor of a new Hardware store at Fort Dodge, Iowa.

That the Puyallup Hardware Company has been organized at Puyallup, Wash., with a capital of \$15,000. The following are the officers of the concern: President, Ezra M. Meeker; vice president, Frank

That Brown & Co., Chino, Cal., dealers in Hardware, &c., have disposed of their business to M. Moyse, who will continue it at the old stand.

That Geo. Joslyn has opened a Hardware store in Southboro, Mass.

That the store of Everson, Anderson & Co., Hardware dealers, Lyle, Minn., was destroyed by fire a short time since.

That F. F. Bagg, Hardware, Lansing, Mich., has sold out to George M. Dayton.

That C. H. Fellows & Co., Haverhill, Mass., have fenced in a tract of land in the rear of their store which they will use for storage purposes.

That George H. Paddock has bought D. W. Burdick's interest in the Hardware firm of Paddock & Burdick, Homer, N. Y., and will continue the business.

That the Morris Hardware Company, Hardware, Guns and Agricultural Implements, Youngstown, Ohio, will build a three-story addition to their establishment. The structure will cost \$16,000.

That W. D. Knox, dealer in Hardware, Gaines, Pa., has been burned out. Loss, \$1700.

That J. J. Hays, Hardware, &c., Polk, Pa., has disposed of his stock to Austin Douth.

That the Hardware firm of Fuller & Bailey, Richmond, Mich., has been dissolved. W. O. Fuller and Merton Fuller have purchased George Bailey's share in the business and will continue under the style of W. O. Fuller & Son.

That Van Valkenberg & Matthias, Hardware dealers, Huntsville, Tenn., have purchased for \$10,000 property on which they will erect a four-story brick business block to cost \$25,000.

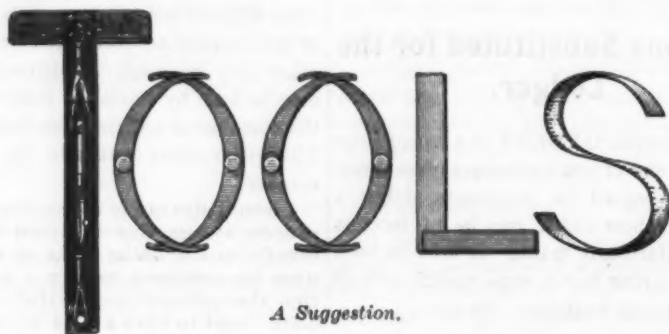
That P. C. Messick is opening a new stock of Hardware in the Opera House Block, Goshen, Indiana.

That R. H. Crippen will soon open a Hardware store at Tonawanda, N. Y.

That Harry J. Millsbaugh, for a number of years with Barker, Rose & Gray, Elmira, has gone to Corning, N. Y., to connect himself with the Hardware firm of Millsbaugh & Drake at that place.

A Suggestion.

THE WORD "TOOLS" as here reproduced is used by Foster, Stevens & Co., Grand Rapids, Mich., on the front cover of the advance sheets of illustrated



A Suggestion.

R. Spinning; secretary, Roderick McDonald; and treasurer, J. P. Meeker.

That O. G. Bean, Hardware, Callendar, Iowa, has sold out his stock to the Prussia Hardware Company of Fort Dodge, Iowa.

That the Hardware store of Truman Bros., Xenia, Ohio, was on the 9th inst. burglarized of a lot of Revolvers, Razors and other Cutlery.

That Adolphus Wysong has purchased the interest of W. G. Higgins in the Hardware and Implement firm of W. G. Higgins & Co., Lebanon, Ind., and will continue the business under his own name.

catalogue and net price-list of fine Tools for accurate measurement. The illustration may be suggestive of some similar arrangement of Tools for show window, sign or combination for attracting customers' attention. The judicious selection of Tools in making up the word in this case adds to its effective simplicity. The illustration will also suggest to some of our enterprising readers the desirability of getting up novel and effective designs for bill heads, letter heads, &c.

Remittance Blank.

A CORRESPONDENT referring to the interest and value of information in regard to business methods alludes especially to remittance blanks and expresses his disapproval of all those forms which require the return of the blank to the sender. His objection to them is that they leave no trace of the remittance on the recipient's books, and he states that he

Pennsylvania, the material improvement, however, being added of printing it in copying ink.

Displaying Goods in the Store.

THE PRACTICE AMONG Hardware merchants as to the arrangement for display of goods in the store differs greatly, particularly in the smaller towns.

where is the need of display, except to please the eye? Still, with seasonable goods, an effort is made to have enough in sight in the showcases and on the shelves and floor to let people know, if they look, that there is something of the kind in stock. Show windows and display boards are undoubtedly good in large towns or cities, but in country places, where everybody knows everybody, there is apt to be a degree of familiarity that is not agreeable when goods are being handled and rehanded.

There is doubtless much truth in our correspondent's observations, as a result of his experience; but notwithstanding the size of the town nor the familiarity shown by customers, a frequently changed display in show windows, and sufficient showcase room for polished Tools, Cutlery, &c., will bring returns entirely out of proportion to the expense and labor expended. The woe-begone appearance of a show window filled with dusty trash and dead flies is not a power to draw dollars from the pockets of customers.

Ethics of Competition.

THE FOLLOWING REPORT on the above subject was submitted by a committee, of which E. W. Bowditch was chairman, at the annual meeting of the National Association of Stove Manufacturers, held in Philadelphia last week, and will be of general interest to the trade :

Your committee in considering the subject given them have striven to treat it from an ethical and not from a purely commercial standpoint, which is so often hemmed in by conditions which we find do exist and flourish in this every-day world, and which probably will exist to a greater or less degree until the millenium is reached. There is no question, however, in our minds but that the existing conditions can, in many ways, be corrected and ameliorated, if not entirely done away with, and it is with this end in view that the report is made. "What should be the relations of stove manufacturers to each other?"

PRICES.

From our standpoint, and indeed from any standpoint, your committee believe that prices should be equalized—based upon the respective merits, measurements, weight and general appearance of goods, to which should be added or taken into consideration the general reputation of the house whose goods are the subject of equalization. In considering this subject, it should be borne in mind that the object to be gained is not to make the price of our goods unduly high, but rather to arrive at a fair remunerative figure, below which we will not sell.

CONDITIONS OF SALE

should be thoroughly understood, agreed upon and strictly adhered to between manufacturers. They should be absolute. Your committee hope most earnestly that members of the Southern and Eastern Pennsylvania associations will, in so far as they are able, give this convention their experience as regards this subject and others mentioned in this report.

CREDITS.

Observation shows us that credits are abused by both the manufacturer and dealer to a very great extent, the manufacturer injudiciously often giving a line of credit of \$100, \$200 or \$300 to persons whose commercial standing at home is not sufficiently good to obtain a money loan of even a paltry sum. Why is it thus? We

OFFICE OF COLUMBUS BOLT WORKS.

Columbus, O., _____ 189

M

Dear Sir :

Enclosed we hand you

for \$_____ covering _____

account as shown below.

[illegible]

Please pass the same to our credit, acknowledge, and oblige,

Yours respectfully,

COLUMBUS BOLT WORKS.

never complies with the request to return, but files away the blank and sends an acknowledgment in regular form. He then adds:

Some firms send the original invoice and simply a pencil note to "receipt and return" and in such case as this I always make out and copy in the impression book an acknowledgment of the remittance, so as to have some record besides the entry in the cash book. I approve of sending the invoice for receipt, but think some form of letter should always accompany it which can be copied in the sender's book and so preserve a record of the remittance.

Our correspondent then refers to a remittance blank in use by his company, which is represented in the diagram given herewith. This form was copied by them from that of a large wholesale house in

Our readers will doubtless be interested in the following letter from a correspondent in New York State, who gives his views on this subject in the following terms:

As to showing goods, I find people are quite apt to handle goods when placed to show. Polished Tools are especially apt to be soiled by handling, and by people who do not want to buy. Therefore I am not given to much show, as it seems of little importance when we know people always ask for what they want. Frequently they will come in and stand looking over the counter into the Nail bins and say "Have you got any Nails?"; or "Have you any Shot?"; when at the same time they may have their hand on the Shot case, on which the word "Shot" is stenciled in large letters. It is a habit that is followed, and for that reason, if they are going to ask for what they see.

can account for it only on the presumption that the manufacturers are too anxious to sell goods, the main object, apparently, being to build up a large trade and outdo their neighbors in productive capacity, while they seldom stop to think of profit or safety in returns. The results are made doubly disastrous to us on the part of the dealer who, unworthily having obtained such a credit, first, demoralizes the retail trade so as to make the business of legitimate or solvent customers unprofitable, endangering their financial stability, and, secondly, abusing said credit by buying all he can on time and paying for none.

OBTAINING AND RETAINING CUSTOMERS GENERALLY.

It must be admitted at the outset that no manufacturer can claim, or at all events substantiate his claim, that any particular dealer or trade belongs specially to him. He may claim it, but he is almost certain in the long run to find that he is mistaken, and that his cherished customer or trade has been taken away from him in the night by someone who has been able to offer something that, while perhaps intrinsically no better, happens to please the individual taste of the dealer better than what he has had before. Admitting this, your committee feel that there are certain practices which obtain which are not wise and which tend to demoralize business. If the salesman of A can by the clever way of displaying his goods and by presenting the various selling features of his wares so impress the dealer with the idea that it will be for his advantage to purchase A's goods in place of B's, which he has been handling, B certainly may feel chagrined at the loss, but he cannot blame A for having taken a customer in the open market in an honorable and straightforward manner.

On the other hand, should A's salesman go to B's customer, and by cutting the price largely or by making concessions, either in freight allowances or terms, secure B's customer, the natural tendency is for B to make reprisals, so that in the end neither party is benefited, but the profits of both are materially reduced or entirely wiped out. Undoubtedly this and many other bad practices could be ameliorated or done away with by more friendly relations being established between the different manufacturers in various parts of the country.

1. Through salesmen—their representation and misrepresentations. Much misconception of our fellow manufacturers and harm arises undoubtedly from the half-digested and oftentimes misleading reports which are brought to us by our salesmen concerning the actions of our competitors. A good salesman is a jewel, cheap at almost any price, while a poor one is more hurtful than none at all. The lack of discernment of human nature in many, stimulated by credulity, leads them to accept as gospel all the dealer says, and they become missionaries, disseminating the same confidentially from field to field. Oftentimes by a half truth a dealer will mislead a salesman, who, instead of carefully weighing the evidence in the case and waiting until he can obtain corroborative testimony, at once in his own mind, accepts as truth that which is false, and announces the fact to his house that he is unable to sell certain goods to certain parties because A or B are making such and such prices or concessions, &c. Your committee deem it the duty of every manufacturer, both from an ethical and commercial standpoint, to weigh carefully, and, as far as is possible, prove the truth or falsity of every representation of his salesmen regarding the concessions of his competitors to their trade in regard to prices, terms, conditions of sale, advertising, or any matter that would influence him in his

own business conduct. He owes this to his competitors as a body, lest by hasty and unadvised action on his part, acting on representations that were false, he takes some step that will force a like step on the part of all manufacturers in his line, to the detriment of all, and resulting in an aggregate loss of which he had no conception, and which he had no moral right to force upon manufacturers as a body. He owes it to himself, as dictated by good business judgment, not to hastily adopt any business policy that will make his own business less profitable at a time when margins are close and conditions strained, and he should be inspired in his actions by that broader policy, "That he who serves his brother best will best serve himself."

2. Through foremen and superintendents—hiring each others' employees. There is no question but that each individual has the moral, as well as the legal right to sell his service to the highest bidder, and that every other individual has a perfect right to bid for it in the open market. Under existing circumstances your committee do not see how anything different from this can be expected. Undoubtedly it would be better if all followed the rule, "Do unto others as you would be done by," but until conditions are changed we fear man will be found in this particular a selfish animal. On the other hand, from an ethical standpoint, and assuming that we all have mutual and intimate relations, there is no question that we should refrain from hiring the employees of our neighbor without at least ascertaining from him whether the man was discharged, left voluntarily, or for what cause. More especially should such care be exercised during the occasion of strikes, boycotts or other disputes, whether local or general.

ORGANIZATION.

It seems to your committee that every other subject is contained in this heading—that is, if we are to treat the matter ethically, as we have endeavored to do from the outset. Sir William Hamilton defines ethics as follows: "Ethics is the science of laws which govern our actions as moral agents." Taking this as a true definition, the various suggestions made to your committee cannot be treated in an intelligent way unless we heartily recognize the fact that association and co-operation are the *sine qua non*. While one man may be smarter or more intelligent than his neighbor in many things, and may think that he can give more than he would receive in the way of information, yet he cannot be so in everything, and in the long run, by the interchange of experience and opinions regarding business methods, he will be the gainer, as well as others. This condition of affairs cannot be attained unless we have co-operation and more intimate association than we now have among the general body of manufacturers.

The results attained and the work accomplished by some of the local associations, notably by the Stove Manufacturers' Association of Eastern Pennsylvania, furnish an admirable illustration of the value of organization and association.

The Eastern Pennsylvania association did not reach its present efficiency without persistent effort on the part of its members. The mere attendance at the meetings of this association is a small part of the work devolving upon its members. To maintain uniform lists and terms, to fix lists on new goods, to investigate alleged infractions, to adjust freight rates and concessions, &c., has required a vast amount of detail work. The members of this association have learned to have confidence in each other. They freely interchange experience and opinions regarding costs and accounts, foundry practice, prices, methods, and all other matters of

mutual interest. Gradually the members have come to realize that they lose nothing by treating each other as friends and partners, instead of regarding each other as natural enemies.

Manufacturers cannot be expected to maintain uniform selling prices for any length of time unless they agree upon a uniform method of computing costs. The members of the Eastern Pennsylvania Association have discussed methods of computing costs until they have all arrived at practically the same formula and the same plan of keeping cost accounts. The Eastern Pennsylvania Association has not yet realized all the benefits that it is possible to secure by intelligent organization and association, but it has gone far enough along the right road to show that purpose, co-operation and plan are better than anarchy and confusion in competition. More complete efficiency and further advancement are but questions of time.

Such, in the main, are the views of your committee on the subject given to them for their consideration. While much that we have said has probably been said before, yet the subject is a most important one, and as nothing that is worth striving for can be gained without much labor, and oftentimes needs the frequent repetition of the same words and ideas before the goal can be reached, we hope at least that ours will not be "love's labor lost," but that by the discussion which may follow much good may come to our fellow craftsmen. Respectfully submitted,

(Signed.)

EDWARD BOWDITCH, chairman.
URIAH HILL, JR., Peekskill, N. Y.
W. G. SEELY, Detroit, Mich.
GEO. W. FLOYD, Royersford, Pa.
F. W. COLLINS, Cortland, N. Y.
H. T. RICHARDSON, New York City.
J. A. LANSING, Scranton, Pa.
H. A. VIETS, Milwaukee, Wis.

Exports.

PER BARK MIAKO, MAY 6, 1891, FOR PORT NATAL, SOUTH AFRICA.

By Corner Bros. & Co.—6 Tools, 1 case Carriage Hardware, 105 cases Carriage Hardware, 187 cases Agricultural Implements.

By H. W. Peabody & Co.—4 dozen Edge Tools, 1 case Corn Planters, 8 cases Builders' Hardware, 2 crates Refrigerators, 3 packages Lawn Mowers, 2 cases Farming Implements, 2 packages Lampware, 6 packages Wheelbarrows, 46 cases Corn Shellers, 3 racks Churns, 4 cases Plows, 3 cases Builders' Hardware, 5 cases Scales, 1 case Sash Cord, 22 cases Plows.

By W. H. Crossman & Bro.—8 dozen Carpenters' Hardware, 1 dozen Builders' Hardware, 174 cases Agricultural Implements, 50 cases Carpenters' Hardware, 20 cases Carpenters' Hardware, 1 case Hardware, 2 crates Churns, 3 cases Carpenters' Hardware, 1 case Builders' Hardware, 11,200 pounds Barb Wire, 1 case Carpenters' Hardware, 75 cases Agricultural Implements, 6 crates Churns, 1 dozen Lawn Mowers, 5 cases Builders' Hardware, 12 Refrigerators, 3000 pounds Nails, 2 gross Stove Polish.

PER BARK STRAUSS, MAY 5, 1891, FOR BRISBANE, QUEENSLAND.

By R. W. Forbes & Son.—41 packages Hardware, 80 dozen Tools, 3800 Bolts, 84 Stoves.

By S. Hoffnung & Co.—25 Lamps, 12 Rifles, 3 dozen Choppers, 15 dozen Broilers, 2 dozen Plumbs and Levels, 1 gross Cow Bells, 3 crates Churns.

By H. W. Peabody & Co.—5 racks Churns, 30 crates Stoves, 13 packages Lawn Mowers, 196 pounds Tacks, 17 cases Builders' Hardware, 30 dozen Forks, 3 cases Whetstones, 560 pounds Nails, 2 cases Builders' Hardware, 1 package Builders' Hardware, 7 cases Hames, 6000 Cartridges, 3 packages Builders' Hardware.

By Arkell & Douglas.—300 feet Hose, 30,000 Rivets, 8 Forges, 25 Scales, 4 dozen Emery Wheels, 17 Refrigerators, 1½ dozen Churns, 4 dozen Axes, ½ dozen Lawn Mowers, ½ dozen Wheelbarrows, 13 dozen Rakes, 13 dozen Picture Wire, 50 dozen Axes, 100 pounds Manila Twine.

FOR WELLINGTON.

By Meriden Britannia Company.—2 packages Plated Ware.

By H. Disston & Sons.—9 cases Hardware, 1 case Tool Handles.

By Goulds Mfg. Company.—100 Pumps.

By W. H. Crossman & Bro.—1 gross Hammers, 73 Churns, 13 Store Trucks, 6 Scales, 1 dozen Barrows, 215 pounds Cordage, 8 boxes Builders' Hardware, 3 cases Carriage Hardware.

By F. B. Wheeler Company.—1 case Forks, 1 case Hardware, 8 cases Wringers, 4 crates Churns, 3 cases Axes.

By McLean Bros. & Rigg.—6 dozen Hinges, 1/2 dozen Wringers, 1 dozen Air Guns, 5 dozen Axes, 1/2 dozen Wagon Jacks, 42 dozen Fire Shovels, 8 dozen Garden Trowels, 20 dozen Axes, 20 sets Axes, 5 dozen Bench Screws, 1/2 dozen Mangles, 2 1/2 dozen Pumps, 110 pounds Sash Cord, 900 pounds Horse Nails, 17 dozen Hay Forks, 5 dozen Wringers.

By H. W. Peabody & Co.—6 cases Horse Nails, 1 case Springs, 3 cases Builders' Hardware, 1 case Lawn Sprinklers, 1 hoghead Pumps, 5 dozen Forks, 2 cases Hoes, &c., 1 crate Copying Presses.

By R. W. Forbes & Son.—200 Axes, 15 dozen Axes, 5 packages Builders' Hardware, 56 boxes Horse Nails, 11 gross Fruit Jars, 12 packages Hardware, 3 cases Carriage Hardware, 40 gross Pencils, 1/2 gross Strops, 100 gross Pencils, 25 1/2 dozen Tools, 2 packages Plated Ware, 54 packages Builders' Hardware, 15 packages Carriage Hardware, 51 packages Builders' Hardware, 18 Churns, 112 boxes Horse Nails.

PER BARK D. A. BRAYTON, MAY 5, 1891, FOR CAPE TOWN, SOUTH AFRICA.

By M. Bertiner.—13 cases Hardware, 86 cases Stoves.

By R. W. Forbes & Son.—6 packages Builders' Hardware.

By W. H. Crossman & Bro.—1 case Carpenters' Hardware.

By H. W. Peabody & Co.—4000 pounds Twine, 10 cases Fruit Jars.

By W. B. Fox & Bro.—11 cases Edge Tools, 3 cases Hardware, 1 case Sweepers, 50 spools Barb Wire, 14 packages Agricultural Implements.

PER SHIP PINMORE, MAY 11, 1891, FOR MELBOURNE, AUSTRALIA.

By H. W. Peabody & Co.—40 packages Lawn Mowers, 2 crates Wheelbarrows, 10 dozen Shovels, 24 cases Hardware, 18 dozen Hardware, 14,610 pounds Wire Rope, 1 case Fire Arms, 1 case Hardware, 4 cases Wringers, 1 case Rivets, 9 cases Hardware, 20 kegs Nails, 8 cases Wringers, 25 kegs Nails, 3 cases Hardware, 4 cases Nails, 1 case Pumps, 1 case Sandpaper, 1 case Pumps, 3 cases Bolts, 4 cases Hardware, 22 packages Hardware, 1 case Hoes, 4 cases Hardware, 1 case Lampware, 2 cases Edge Tools, 70 cases Tools, 2 cases Forks.

By Strong & Trowbridge.—74 dozen Axes, 24 dozen Cotton Hooks, 2 cases Hardware, 1 case Locks, 1 case Nails, 4 cases Cartridges, 3 cases Guns, 6 cases Hardware, 5 dozen Lamp Ware.

By McLean Bros. & Rigg.—3 dozen Razors, 2 dozen Chucks, 5 dozen Wringers, 3 dozen sets Sad Irons, 4 1/2 dozen Meat Choppers, 12 dozen Hoes, 140 pounds Nails, 6 cases Cartridges, 2 cases Hammers, 13 cases Agate Ware, 1 case Tacks, 1 case Air Guns, 20 dozen Hatchets, 14 dozen Saws, 113 packages Harvesting Machinery.

By W. H. Crossman & Bro.—4 cases Pumps and parts, 1 case Vises, 1 case Lamp Goods, 6 dozen Wringers, 30 dozen Hoes, 4 gross Traps, 13 packages Hardware, 18 dozen Oilers, 428 pounds Stone, 14 cases Nails, 4000 Loaded Shells, 3000 Empty Shells, 4 Guns, 27 cases Hardware, 2 cases Cartridges and Primers, 3 dozen Traps, 7 dozen Lanterns, 4 dozen Snaths, 9 dozen Oilers, 26 packages Hardware, 18 packages Agricultural Implements, 10 tons Barb Wire, 3 gross Traps, 1 gross Anvils, 10 crates Polish, 6 dozen Scales, 8000 Bolts, 15 dozen Whip Sockets, 6 dozen Bush Hooks, 2 cases Hardware, 3 dozen Traps, 1 barrel Map Goods, 650 pounds Nails, 1 box Revolvers and Cartridges, 2 cases Wringers, 11 packages Hardware, 4 Refrigerators, 3 packages Lamp Goods, 19 dozen Hoes, 65 dozen Wrenches, 2 cases Hardware, 3 Guns and parts, 4 packages Hardware.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

The period under review has been an uneventful one in this branch of trade, and, with some few exceptions, the dis-

tribution of goods would appear to be in somewhat unfavorable contrast with the average of the preceding two or three weeks. However, the change has not been such as would lead to any apprehension as to the winding up of the spring season movement and the surface indication is that extreme caution, prompted by the unsettled condition of affairs in financial circles, is more accountable for the present experience than any circumstances within the Paint and allied trades. Values show little fluctuation, and there are no signs of impending wide variations in the immediate future.

White Lead.—Officials of the Lead Trust assert that sales of Pigment are running ahead of the movement at the corresponding period last year, and the management of the several corroding establishments located in this section corroborate that statement. Several manufacturers of Mixed Leads also claim an increase in the sales of their goods, some confirmation of which is found in the larger trade this spring in commodities used in making those compounds. It would thus seem that both interests enjoy the satisfaction of progress in their respective lines, and, to all accounts, the general movement is relatively as good, although perhaps not as large in the aggregate amount of product involved as it has been at any previous time since the opening of the spring season. Competition is keen at times, but does not get to a point where corrodors find it expedient to make any concessions from the list prices that have been in force for some time past. In fact, the only deviation is that made by the jobbers when the pigment may be used to advantage as a leader, and slight irregularity on some of the cheaper classes of Mixed Leads.

Zincs.—All favorable features heretofore noted in our reviews are still enjoyed by manufacturers of American Oxide. The demand is steady, current production is closely sold up, and some manufacturers still find it necessary to call upon their neighbors for stock to properly meet the demands of customers. For example, one prominent manufacturer was very recently obliged to purchase 1600 barrels, although running to full capacity. This strong position is suggestive of a probable upward movement in prices, but as yet no movement in that direction has been made, although manufacturers have a sort of understanding that could be employed to advantage at this time. Foreign brands are firm at the former line of prices, and the demand for the imported article continues fairly active.

Colors.—The steady movement of Oil Colors, Mixed Paints, &c., enjoyed by manufacturers of the same keeps the market for nearly everything in the line of grinders' Colors in good form, and prices are quite firm throughout, although there seem to be sufficient supplies to accommodate the demand. Dry Colors for house painters' use are moving quite as freely as they have at any previous time this month, and, with some few unimportant exceptions, prices remain steady.

Miscellaneous.—The situation in the Chalk market is unchanged. There is little interest in cargoes for shipment, as large buyers have their wants well protected and nearly all supply in transit is under contract. Orders for Whiting and Paris White are still coming in quite freely, but manufacturers meet the demand without ceremony at old prices. In the position of the market for Barytes there has been no change and the movement in that line and of Clays generally is of routine character, with prices steady throughout.

Oils and Turpentine.

While no striking changes in prices have taken place, nor operations of buyers exceeded ordinary proportions, there is a certain amount of speculation regarding

the outcome of the surroundings in some departments that gives matters a more interesting turn. Misgivings as to the solidity of the out-of-town Linseed Oil manufacturers' agreement have a more or less disturbing influence, not only here, but at other points. The peculiar course of the market for raw material causes uncertainty as to Lard Oil values. Fresh inquiries from exporters operate to check a sagging tendency to prices of Cotton-Seed Oils that has been observed at intervals, and the near approach of the new fishing is not without effect upon the market for Menhaden products. Pending developments, buyers' operations are conducted in a cautious manner; yet the general distribution is doubtless up to the average for the season.

Linseed Oil.—The experience of city crushers and their salesmen among customers in this and adjacent markets affords very strong circumstantial evidence that, despite the professions of fidelity to the compact entered into at the late meeting in Buffalo, out of town manufacturers are not so harmonious when looking for business as they are when in conference for the purpose of promoting mutual welfare. Facts elicited in various quarters go to show that concessions from the combine prices were made very shortly after the last meeting and are still granted. It would appear also that the National Linseed Oil Company aggregation is no better than some of its less pretentious competitors in adhering strictly to the lines of compact. In other words, the various Western interests seem to be ungovernable and there is more than a bare chance that, should Western peculiarities become more pronounced in this locality, local crushers will be found on the aggressive. Up to the present time, however, city brands made from American Seed are firm at 57¢ for Raw Oil, although cuts of 1¢ @ 2¢ are said to have been made on the nominal price for Western.

Cotton-Seed Oils.—Transactions in round lots have been on a moderate scale, but the offering of both crude and refined product is less urgent now than it was a week ago. This slight turn for the better is attributed to the appearance of more demand from the European markets, and some indication that the inquiries are not solely feelers. The home trade demand displays no animation, and is chiefly for comparatively small quantities. Where actual trades are concerned no change in prices is discovered, and the improvement thus far is chiefly in sentiment or feeling.

Lard Oil.—A falling off in orders, together with lower cost of raw material early in the week, has served to bring about some modification in prices, and the market is barely steady at this writing. Best city brands of present make prime have been selling at 54¢, and others that do not stand as well in the estimation of buyers went at 1¢ less. Those prices represent the present market value for lots of ten barrels or more.

Sperm Oil.—A lot of 100 barrels crude has been sold for export at 73¢, which price shows 1¢ advance since last sale. No change has been made in prices of manufactured product, but the market is firm, with the tendency of values upward.

Menhaden Oil.—A line of about 1300 barrels crude has been sold for export at 25¢, which price is 2¢ under the previous pretensions of holders. At present the demand is moderate, not only for crude product, but for the pressed and bleached Oils.

Spirits Turpentine.—The market has been rather slow, and prices are somewhat weaker under the influence of freer offering by local receivers. Sales have been made at 38 1/2¢ @ 39¢ for regular and 39¢ @ 39 1/2¢ for machine barrels.

Freeport Safety Bicycle.

Freeport Bicycle Mfg. Co., Freeport, Ill., are offering the trade a bicycle with 30-inch wheels, nickel trimmings and nickled spokes, as shown in Fig. 1. The main frame is referred to as being of one continuous piece of imported seamless steel tubing, curved on lines to secure the greatest strength. To the frame the crank

the head and is referred to as thus securing the strength of a diamond frame, and makes the wheel readily available for either lady or gentleman. The saddle is described as follows: Immediately beneath the leather seat, one flat spring, split and coiled, and the diverging arms attached to the rear of the saddle, lies either upon or beneath a flat spring shackled eccentrically at the pom-

sprocket wheel, we equalize the resistance and power, the speed motion of the machine developed by each crank being greatest when the crank is moving directly downward, and the leverage greatest when the rider is most disadvantaged in applying his power. Thus this form of sprocket wheel gives the greatest speed where the rider commands the greatest power, and



Fig. 1.—Freeport Safety Bicycle.

shaft is secured, which is mounted on a swinging bearing, and at this point a set screw is provided for the adjustment of the sprocket chain. It is claimed that this method is superior to the terminal or rear wheel adjustment. A steel rod from the brake handle enters the handle bar almost immediately beneath the handle grip, and thence runs inside the handle bar to the head, where it intersects a rotating device connected with a rod running inside the head

mel. These springs move longitudinally upon each other, and are secured by a set screw within a device which may rotate upon the saddle post. At the pommel and underneath the leather is provided a lever for moving the eccentric shackle attached to the front leaf of the spring. This lever serves to put tension upon the leather after the springs are adjusted, and may be also used to relieve the tension when the saddle is not in use. Each wheel is full ball bear-

the shortest arc of the wheel being at the rider's dead center, the power is longer retained on the downward stroke and sooner regained for effective operation. The most noticeable advantage secured in this form of sprocket wheel over the ordinary form is the greater ease with which the operator can climb grades. Attention is also directed to the fact that upon the road the more nearly continuous application of power is noticed, which in long distance riding is a decided advantage. The conclusion is drawn that a higher average rate of speed is maintained, the wheel being subject to the application of power for a greater percentage of each revolution of the sprocket wheel than in the ordinary form.

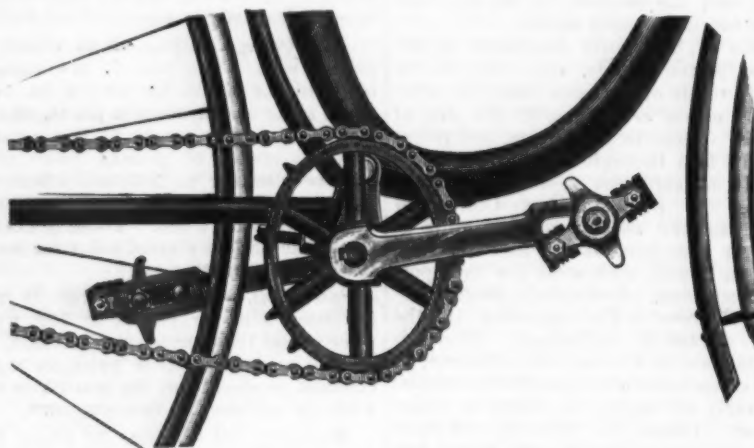


Fig. 2.—Elliptical Sprocket Wheel.

standard to the brake shoe. The ends of the wire spokes are not upset to secure the proper size for threading, but the original size is retained for the same size bearing as is used in the ordinary spoke, and the part intermediate between the hub and rim is reduced in size to that of the spoke generally used. The adjustable brace rod runs from the seat standard to

ing. The elliptical sprocket wheel, Fig. 2, is alluded to as a radical departure from old forms, and as the most decided improvement made in bicycles since the safety wheel came into use, and its advantages are explained as follows by the manufacturers:

By placing the cranks nearly at right angles to the major axis of the elliptical

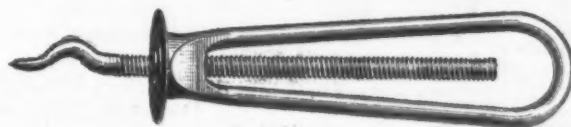
Polychrome Finish

Consolidated Fruit Jar Company, New Brunswick, N. J., and 49 Warren street, New York, are mailing to the trade samples of their patent applied for recessed polychrome caps, also patent enameled top caps, used extensively by the drug and catsup trade. They include sample of decorated work in the shape of a lozenge box. These are substantial metallic screw caps, with attractive adhesive labels on the tops. The samples are sent for the purpose of advertising their lithograph goods, which are manufactured in their decorating department. They are manufacturers of all kinds of decorated work, such as boxes, signs, cartons, &c., for druggists', grocers' and confectioners' use. They advise us that their lithograph department, started as an experiment about a year ago, has grown to such proportions that they expect very shortly to move that department into new buildings to be devoted especially to that branch of

manufacture. They refer to their goods as certainly up to if not a little ahead of the times.

Electric Rotary Expansive Can Opener.

Alford & Berkele, 77 Chambers street, New York, are introducing a can opener, as illustrated herewith. The handle is of malleable iron, tin plated; the adjustable screw, which also forms the point that is



Electric Rotary Expansive Can Opener.

thrust through the can, is of steel, and the wheel cutter is of the best tempered steel. With this opener a circular hole can be cut in the top of a can from 1½ to 7 inches in diameter.

Daisy Shaker.

Stevens, Woodman & Co., Portland, Maine, are introducing a shaker, as illustrated herewith. It is referred to as being nicely silver-plated, holding 1 pint, and



Daisy Shaker.

having an adjustable cap with a strainer. It is designed for use with soda fountains, and for milk shake, lemonade, &c.

An Interesting Catalogue.

An illustrated catalogue of 103 pages, 10 x 10 inches in size, has been issued by the Berlin Iron Bridge Company of East Berlin, Conn. A general view of the company's extensive works is given on the last page, and handsome photographic views and drawings of iron bridges, buildings, roofs, &c., are reproduced on every page of the catalogue. Prominent among these we notice views of the stock house of the Lackawanna Iron and Coal Company, at Franklin Furnace, N. J.; iron roofs for the works of the Ansonia Brass and Copper Company, at Ansonia, Conn.; drawings and photographs of the machine shop of the C. W. Hunt Company, at West New Brighton, S. I., N. Y., and roof for the rolling mill of the Seymour Mfg. Company, at Seymour, Conn. This building is 200 x 160, and replaced the wooden structure destroyed by fire. Two photographs and drawings are given showing the foundry building of the Farrel Foundry and Machine Company, at Ansonia, Conn. This foundry is 302 x

129 feet in size, and was designed and equipped for the heaviest casting work. The building is so arranged that at any point under the traveling crane girders jib cranes can be placed, and the wings are also arranged for supporting jib cranes. Views and drawings are also given of an iron roof over the rolling mill of the Coe Brass Mfg. Company, at Torrington, Conn.; machine shop for the Newport News, Va., Ship Building and Dry

Dock Company; machine shop for the Titusville Iron Company at Titusville, Pa., besides numerous photographs of casting houses, boiler houses, train sheds, &c. A full and complete description of the work accompanies every view, and will prove interesting reading to those who contemplate the construction of buildings for manufacturing purposes. In the introduction the company state that American manufacturers are fast learning that the first cost of building a new plant is not so great an element as to have a plant so planned and constructed as to reduce the cost of repairs and the cost of production to the least possible minimum.

Boiler Makers' Supplies at St. Louis.

Manufacturers of boiler makers' supplies were well represented at the convention of boiler makers at St. Louis on the 12th inst. The Western Valve Company of Chicago exhibited their asbestos packed blow-off cocks, and also distributed a neat catalogue of their steam specialties, containing full illustrations and price lists. John O'Brien of St. Louis exhibited samples of flanging done with his patent flanging machine, one having sides beveled in, one with sides flaring and one with straight sides. G. L. McGregor, 246 and 248 South Clinton street, Chicago, showed his patent solid steel boiler brace, which is made in one heat and with no welds. J. F. Faessler of Moberly, Mo., exhibited his patent Boss flue expander. The Brennan Brace Company, 509 Olive street, St. Louis, showed specimens of their patent unwelded braces, which they state can be made of any standard size and of either steel or iron for any strength required. The specialties represented by circular were as follows: The Faries boiler cleaner and circulator, patented and manufactured by R. P. Faries, Wichita, Kan., consisting of a spiral conveyor and circulator, to be arranged in the lower part of a boiler; the Williams patent self-grinding rotating gauge cock, manufactured by Williams' Indicator and Column Gauge Alarm Company, A. Fulton's Son & Co., sole agents, 91 First avenue, Pittsburgh; the Lennox improved beveling shears, made by Lennox Machine Company, Marshalltown, Iowa; the Kearney and Hawley furnace for fuel saving and smoke consuming, now in successful use in numerous establishments in St. Louis and at other points in the West, controlled by M. C. Hawley, 1405 Washington avenue, St. Louis; W. T. Bate's patent steam generator, manufactured by W. T. Bate & Son, Conshohocken, Pa.

Weldless steel chains are being experimented with in England. The chains are cut from a blank after the same general methods employed in cutting out a chain from a single piece of wood. As steel is

used, it is asserted that the weight can be reduced one-third from what was necessary in old chains of similar strength.

Henry B. Newhall Company, 105 Chambers street, New York, issue circular relating to structural iron and steel, material for warehouses, docks, bridges, &c., for which they are manufacturers' agents. A list is also given of the different concerns who are thus represented, including a number of leading manufacturers.

Tonnage to the amount of 804,846 tons, comprising 549 vessels, is now being built in the United Kingdom, as compared with 863,678 tons on March 31, 1890.

The sale of the Anaconda mine to the Rothschilds is announced as practically completed. The price named is \$25,000,000. That compares with \$6,500,000 for the Boston and Montana, \$4,500,000 for the Butte and Boston, at present market prices.

CONTENTS.

Vertical Cylinder-Boring Machine. Illus....	959
Payments in Silver	960
The Boiler Makers.	960
The Valley Shut Down.....	964
Electric Elevator. Illustrated.....	965
The Vessels Under Construction.....	966
The Coyne Railroad Splice. Illustrated....	966
Commerce of British Honduras... ..	966
The Cost of Rail Ingots.....	967
Correspondence	967
The New Scale.....	967
Sparrow's Point Blowing Engine. Illus....	968
The American Armada	969
One Hundred and Fifty Miles an Hour.....	970
Locomotives for Export.....	971
The Dinkel Steam Trap. Illustrated.....	971
Gas Valve for Gas Producers. Illustrated. .	972
The First Bismarck.....	972
The Week.....	973
The Coke Strike.....	974
New Electric Street Car.....	974
Editorials:	
The Depletion of Gold	975
An English Critic on American Iron Manufacture.....	975
Industrial Securities	976
Meeting of the Tin Plate Manufacturers at Pittsburgh.....	976
Washington News.....	977
Cleveland-Iron Cliffs Consolidation....	977
Obituary.....	978
Chimney Climbing.....	978
Manufacturing: Iron and Steel, Machinery, Hardware, Miscellaneous.....	979-980
Personal.....	980
The Madison Car Works.....	980
Trade Report: Chicago, Cincinnati, Louis- ville, Philadelphia, Cleveland, Pittsburgh, St. Louis, New York, New York Metal Ex- change, Detroit, Financial, Coal Market, Metal Market, British Iron and Metal Mar- kets, Imports.....	981-986
Hardware: Condition of Trade, Notes on Prices, Foreign Trade, Simmons Hardware Co., Trade Items, Price-Lists, Circulars, &c., Trade Topics, Steel Goods Rack—Illus- trated, Methods of Circularizing, Coupons Substituted for the Ledger, Handling Bicycles, Protection for Retailers, Anglers' Contest, It Is Reported—A Suggestion— Illustrated, Remittance Blank, Displaying Goods in the Store, Ethics of Competition, Exports, Paints and Colors....	987-997
Freeport Safety Bicycle. Illustrated.....	998
Polychrome Finish.....	998
Electric Rotary Expansive Can Opener. Il.	999
Daisy Shaker. Illustrated.....	999
An Interesting Catalogue.....	999
Boiler Makers' Supplies at St. Louis.....	999
Current Hardware Prices.	1000-1005
Current Metal Prices.....	1006

CURRENT HARDWARE PRICES.

MAY 20, 1891.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers' name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers, at the figures named.

Adjusters, Blind.

Domestic..... \$ dos \$3.00, 33¢
 Excelsior..... \$ dos \$10.00, 50¢10¢25¢
 Washburn's Self-Locking..... 20¢20¢10¢

Ammunition.—

Caps, Percussion, 1000—
 Hicks & Goldmark's and Union Metallic
 Cartridge Co.
 F. L. Waterproof, 1-10's..... 34¢35¢
 E. B. Trimmed Edge, 1-10's..... 46¢48¢
 E. B. Grad. Edge, Cent. Fire, 1-10's..... 46¢47¢
 Musk. Waterproof, 1-10's..... 50¢
 G. D..... 28¢
 S. B. Genuine Imported..... 45¢
 Eley's E. B..... 54¢ 57¢
 Eley's D Waterproof, Central Fire..... \$1.60

Cartridges—

Rim Fire Cartridges..... 50¢52¢
 Rim Fire Military..... 15¢2¢
 Cent. Fire, Pistol and Rifle..... 25¢25¢2¢
 Cent. Fire, Military and Sporting..... 15¢52¢
 Blank Cartridges, except 22 and 32 cal.,
 additional 10% on above discounts.
 Blank Cartridges, 22 cal., \$1.75..... 2¢
 Blank Cartridges, 32 cal., \$3.50..... 2¢
 Primed Shells and Bullets..... 15¢52¢
 B. B. Caps, Round Ball, \$1.75..... 2¢
 B. B. Caps, Con. Ball, Swgd., \$2.00..... 2¢

Primers—

Berdan Primers, \$1.00..... 2¢
 B. L. Caps (for Sturtevant Shells) \$1.00..... 2¢
 All other Primers, \$1.30..... 2¢

Shells—

First quality 4, 8, 10 and 12 gauge..... 25¢10¢2¢
 First quality, 14, 16 and 20 gauge (\$10
 list)..... 30¢10¢2¢
 First..... 40¢2¢
 Star, Club, Rival and Climax brands..... 38¢39¢10¢2¢
 Selbold's Comb. Shot Shells..... 15¢2¢
 Brass Shot Shells, 1st quality..... 60¢2¢
 Brass Shot Shells, Club, Rival, Climax..... 65¢2¢

Shells Loaded—

Standard List, July 19, 1890..... 40¢10¢
 Wad—Price per M.
 U.M.C. & W.R.A.—B. E. 11 up..... 65¢
 U.M.C. & W.R.A.—B. E. 9¢10..... 82¢
 U.M.C. & W.R.A.—B. E. 8..... 96¢
 U.M.C. & W.R.A.—B. E. 7..... \$1.10
 U.M.C. & W.R.A.—P. E. 11 up..... 1.15
 U.M.C. & W.R.A.—P. E. 9¢10..... 1.50
 U.M.C. & W.R.A.—P. E. 8..... 1.80
 U.M.C. & W.R.A.—P. E. 7..... 1.70
 Eley's B. E. 11 up..... 1.75
 Eley's P. E. 11 up..... 2.80

Anvils—

Eagle Anvil, 100..... 15¢15¢5¢
 Peter Wright's..... 11¢11¢4¢
 Armitage's Mouse Hole..... 10¢11¢
 Armitage's Mouse Hole, Extra..... 12¢12¢4¢
 Trenton..... 10¢10¢4¢
 Wilkinson's..... 10¢10¢4¢
 Moore & Barnes Mfg. Co..... 38¢4¢

Anvil Vise and Drill—

Millers Falls Co., \$18.00..... 30¢
 Cheney Anvil and Vise..... 25¢
 Allen Anvil and Vise, \$2.00..... 45¢5¢
 Star..... 45¢5¢

Apple Parers—See Parers, Apple, &c.

Augers and Bits—

Douglas Mfg. Co..... 70¢10¢
 Wm. A. Ives & Co.....
 Humphreysville Mfg. Co.....
 French, Swift & Co. (F. H. Beecher, ..
 P. S. & W. Co.....
 Rockford Bit Company.....
 Cook's, Douglas Mfg. Co..... 55¢
 Cook's, H. H. Copper Co. 50¢10¢50¢10¢5¢
 Ives' Circular Lip..... 20¢
 Patent Solid Head..... 20¢
 C. E. Jennings & Co., No. 10, extension
 lip..... 40¢
 C. E. Jennings & Co., No. 30..... 60¢
 C. E. Jennings & Co., Auger Bits, 1 set,
 25¢ quarters, No. 5, 8, No. 30, \$5.50, 20¢
 Lewis' Patent Single Twist..... 45¢
 Russell Jennings' Augers and Bits 25¢10¢
 Imitation Jennings' Bits..... 60¢60¢5¢
 Snell's Jennings Pattern..... 60¢
 Fogh's Black..... 20¢
 Rockford, Jennings' Pattern..... 60¢
 Car Bits..... 60¢60¢10¢
 Car Bits, F. S. & W. Co..... 60¢10¢
 Snell's Car Bits..... 60¢
 L. Hommedieu Car Bits..... 15¢10¢
 Forster's Pat. Auger Bits..... 20¢
 Cincinnati Bell-Hangers' Bits..... 30¢10¢
 Bit Shod Drills—
 Morse Twist Drills..... 50¢10¢5¢
 Standard..... 50¢10¢5¢
 Cleveland..... 50¢10¢5¢
 Syracuse, for metal..... 50¢10¢
 Williams, for wood (wood list) 50¢50¢5¢
 Williams' or Holt's, for metal 50¢10¢10¢
 Williams' or Holt's, for wood..... 40¢10¢
 Cincinnati, for wood..... 30¢10¢
 Cincinnati, for metal..... 45¢10¢

Expansive Bits—

Clark's small, \$18; large, \$30..... 35¢35¢2¢
 Ives' No. 4, \$ dos \$60..... 40¢
 Swan's..... 40¢
 Steer's, No. 1, \$30; No. 2, \$22..... 35¢
 Stearns' No. 2, \$48..... 30¢

Gimlet Bits—

Common..... \$ gross \$2.75¢23¢
 Diamond..... \$ dos \$1.10..... 25¢10¢
 See..... 25¢25¢5¢
 Double Cut, Shephardson's..... 45¢45¢10¢

Double Cut, Ct. Valley Mfg. Co..... 30¢10¢
 Double Cut, Hartwell's, \$ gro..... 55¢25¢
 Double Cut, Douglass'..... 40¢10¢
 Double Cut, Ives'..... 60¢60¢10¢
 Hollow Augers—
 Ives..... 33¢4¢
 French, Swift & Co..... 33¢4¢10¢
 Douglass'..... 40¢10¢
 Bonney's Adjustable, \$ dos \$48..... 40¢10¢
 Stearns'..... 20¢10¢
 Ives' Expansive, each \$4.50..... 50¢35¢
 Universal Expansive, each \$4.50..... 20¢
 Wood's..... 25¢10¢
 Cincinnati Adjustable..... 25¢10¢
 Cincinnati Standard..... 25¢10¢
 Ship Augers and Bits—
 L'Hommiedieu's..... 15¢10¢15¢10¢5¢
 Watson's..... 15¢10¢15¢10¢10¢
 Snell's..... 15¢10¢15¢10¢25¢
 Snell's Ship Auger Pat'n Car Bits..... 15¢10¢15¢10¢5¢

Awl Hafts—See Hafts, Awl.

Awls, Brad Sets, &c—
 Awls, Sewing, Common..... \$ gr \$1.70, 85¢
 Awls, Should. Peg, \$ gr \$3.45, 40¢40¢10¢
 Awls, Pat. Peg, \$ gr \$3.45, 40¢40¢10¢
 Awls, Shouldered Brad, 2.70 \$ gr..... 35¢
 Awls, Handled Brad..... \$7.50 \$ gr..... 45¢
 Awls, Handled Scratch \$ gr, \$7.50, 35¢10¢
 Awls, Socket Scratch, \$ dos, \$1.50, 25¢30¢

Awl and Tool Sets—See Sets, Awl and Tool.

Plain, Beveled.
 First quality, best brands \$7.00 @ \$7.50
 First qual., other brands \$6.25 @
 Second quality..... 6.00 6.50

Axle tirecase—See Grease, Axle.

Axles—
 No. 1, 4¢ @ 5¢, No. 2, 5¢ @ 6¢, 5¢
 Nos. 7 to 14..... 55¢55¢
 Nos. 15 to 19..... 47¢5¢
 Nos. 19 to 22..... 70¢
 Concord Axles, loose collar..... 5¢6¢
 Concord Axles, solid collar..... 6¢6¢7¢
 National Tubular Self-Oiling..... 35¢35¢35¢

Bag Holders.—See Holders, Bag.

Balances—
 Spring Balances..... 40¢
 No. 2000 20 30
 Chatillon, \$ dos..... \$0.50 0.95 1.75 net
 Chatillon Straight Balances..... 40¢
 Chatillon Circular Balances..... 50¢10¢

Bars.

Cast Steel..... \$ 34¢
 Iron, Steel Points..... \$ 34¢
 Basins, Wash—
 Standard Fiberware, No. 1, 10½-inch, \$3;
 12-inch, \$2.25; 13½-inch, \$2.75; 15-inch,
 \$3.25.

Beams, Scale—

Scale Beams, List Jan. 12, '92..... 50¢10¢
 Chatillon's No. 1..... 40¢
 Chatillon's No. 2..... 50¢
 Custer's..... 35¢35¢

Benetars—

Dover..... \$ dos \$1.50
 Duplex (Standard Co.)..... \$ dos \$1.25
 Rival (Standard Co.)..... \$ dos \$1.00
 Duplex Extra Heavy (Standard Co.)..... \$ dos \$3.50
 Bryant's..... \$ gro \$14.00
 Double (H. & R. Mfg. Co.), \$ gro. No. 0,
 \$12.00; No. 1, \$15.00; No. 2, \$18.00
 Easy (H. & R. Mfg. Co.)..... \$ gro \$12.00
 Triple (H. & R. Mfg. Co.)..... \$ gro \$16.50
 Spiral..... \$ gro \$4.25 @ 4.50
 Improved Acme (H. & R. Mfg. Co.)..... \$ gro \$9.00
 Paine, Diehl & Co.'s..... \$ gro \$24.00
 Silver & Co..... \$ dos \$5.50

Belts—

Keystone, P. D. & C., Each, No. 1, \$1; No.
 2, \$2..... 30¢
 Belts—
 Common Wrought..... 60¢10¢
 Western..... 20¢10¢
 Western, Sargent's list..... 70¢10¢
 Kentucky, "Star"..... 50¢10¢
 Kentucky, Sargent's list..... 70¢10¢
 Kentucky Durham..... 70¢10¢
 Dodge, Genuine Kentucky..... 70¢70¢10¢
 Texas Star..... 50¢10¢50¢10¢5¢
 Call..... 40¢40¢5¢
 Farm Belts..... \$ 2 34¢34¢
 Steel Alloy Church and School Belts..... 40¢

Boys.

Gong, Abbe's..... 33¢4¢10¢
 Gong, Yankee..... 45¢10¢
 Gong, Barton's..... 40¢10¢50¢
 Crank, Taylor's..... 25¢10¢
 Crank, Brooks'..... 50¢10¢2¢
 Crank, Cone's..... 10¢
 Crank, Connel's..... 30¢10¢
 Lever, Sargent's..... 50¢10¢
 Lever, Taylor's Bronzed or Plated..... 25¢10¢
 Lever, Taylor's Japanese..... 25¢10¢
 Lever, R. E. M. Co.'s..... 50¢10¢2¢
 Pull, Brook's..... 50¢10¢2¢
 Pull, Western..... 25¢10¢
 Electric..... 20¢
 Wollensack's..... 20¢
 Bigelow & Dowell..... 20¢
 Taylor's..... 20¢

Hand—

Light Brass..... 75¢10¢
 Extra Heavy..... 65¢10¢
 White Metal..... 60¢10¢10¢
 Silver Chime..... 35¢4¢10¢
 Globe Cone's Patent..... 25¢10¢35¢
 Bellows—
 Blacksmith's..... 60¢5¢65¢
 Molders'..... 40¢40¢10¢
 Hand Bellows..... 40¢10¢50¢

Belting, Rubber—

Common Standard..... 70¢70¢5¢
 Standard..... 60¢10¢10¢70¢
 Extra..... 50¢10¢60¢
 N.Y.B. & P. Co., Carbon..... 60¢
 N.Y.B. & P. Co., Diamond..... 50¢
 N.Y.B. & P. Co., Para..... 40¢

Bench Stops—See Stops, Bench.

Benders, Upsetters, Tire.

Stoddard's Lightning Tire Upsetters..... 15¢
 Detroit Perfecting Tire Bender..... 15¢

Bits—

Auger, Gimlet, Bit Stock, Drills, &c.,
 see Augers and Bits.

Blind Holders—See Holders.

Blind Adjusters—See Adjusters.

Blind Fasteners—See Fasteners.

Blind Staples—See Staples, Blind.

Blocks—

Ordinary Tackle, list May 20, 1890..... 60¢10¢10¢70¢
 Cleveland Block Co., Mal. Iron..... 50¢
 Moore's Novelty, Mal. Iron..... 50¢
 Sure Grip Steel Tackle Blocks..... 25¢

Boards, Stove.

Wood Lined "Crystal"..... 50¢
 "Embossed"..... 50¢
 "Oxidized"..... 45¢
 Paper Lined Zinc..... 55¢
 "Crystal"..... 55¢
 "Embossed"..... 55¢
 "Oxidized"..... 45¢

Bolts—

Carriage, Machine, &c.—
 Com. list June 10, '84..... 75¢10¢2¢
 Genuine Eagle, list Oct. '84..... 75¢10¢80¢
 Phila. pattern, list Oct. 7, '84..... 80¢80¢10¢
 R. B. & W., old list, 1890..... 70¢
 Machine, list Jan. 1, 1890..... 75¢10¢75¢10¢5¢
 Bolt Ends, list Jan. 1, 1890..... 75¢10¢75¢10¢5¢

Door and Shutter—

Cast Iron Barrel, Square, &c..... 70¢70¢10¢
 Cast Iron Shutter Bolts..... 70¢70¢10¢
 Cast Iron Chain (Sargent's list)..... 55¢10¢
 Ives' Patent Door Bolts..... 60¢
 Wrought Square..... 70¢70¢10¢
 Wt'r Shutter, all iron, Stanley's..... 60¢10¢
 Wt'r Shutter, Brass Knob..... 40¢10¢
 Wt'r Shutter, Sargent's list..... 60¢10¢
 Wt'r Sunk Flush, Sargent's list..... 55¢10¢
 Wt'r Sunk Flush, Stanley's list..... 50¢10¢
 Wt'r B.K. Flush, Com'n..... 55¢10¢

Stove and Plow—

Stove..... 60¢
 Plow..... 60¢5¢
 R. B. W., Plow..... 55¢

Tire.

Common, list Feb. 23, '83..... 65¢
 Port Chester Bolt and Nut Company:
 Empire, list Feb. 23, '83..... 65¢
 Keystone, Philadel., list Oct. '84..... 30¢
 Norway, Phila., list Oct. '84..... 75¢
 American Screw Company:
 No. 1, Phil., list Oct. 15, '84..... 75¢
 Eagle, Phil., list Oct. 15, '84..... 30¢
 Philadel., list Oct. 15, '84..... 30¢
 Bay State, list Feb. 23, '83..... 65¢
 R. B. & W., Philadel., list Oct. 15, '84..... 30¢

Forers, Tap.

Common and kind..... 30¢10¢
 Ives' Tap Forers..... 35¢25¢
 Enterprise Mfg. Co..... 30¢10¢30¢
 Clark's..... 35¢35¢

Borax.

Boring Machines—See Machines,
 Boring.
 Bow Pins—See Pins, Bow.
 Boxes, Wagon..... 34¢

Braces.

American Bit Brace Co.:
 Nos. 10, 12, 20..... 60¢10¢
 Nos. 11, 21, 24, 27..... 70¢10¢
 Nos. 22, 25, 28..... 60¢10¢5¢
 Nos. 13, 26, 36, 37..... 70¢10¢5¢
 Sargent, 3 in., \$2.10 20 in..... \$1.12 to \$1.35
 Amidon:
 Barker's Imp'd Plain..... 75¢10¢30¢
 Barker's Imp. Nickleled..... 65¢10¢70¢
 Ratchet..... 75¢10¢80¢
 Eclipse Ratchet..... 60¢
 Globe Jawed..... 40¢40¢10¢
 Corner Brace..... 40¢40¢10¢
 Universal..... 40¢40¢10¢
 Buffalo Rail..... \$1.10¢1.15
 Barber's:
 Nos. 10 to 16..... 80¢
 Nos. 20 to 33..... 80¢
 Nos. 40 to 63..... 50¢10¢
 Sargent's:
 Barker's Imp. Polished..... 75¢10¢50¢
 Barker's Imp. Nickleled..... 65¢10¢70¢
 Ratchet, Polished..... 60¢10¢60¢
 Ratchet, Nickleled..... 40¢10¢50¢
 Buffalo Rail..... net, \$1.10¢1.15
 Bartholomew's:
 Nos. 25, 27 and 30..... 50¢10¢50¢5¢
 Nos. 17, 18, 119..... 70¢10¢5¢
 Common Ball, American..... \$1.00¢1.10
 Fray's Genuine Spotted's..... 50¢50¢10¢
 Fray's No. 70 to 120, 81 to 123, 207 to 414
 50¢10¢
 Ives' New Haven Novelty..... 70¢70¢5¢
 New Haven Ratchet..... 60¢5¢60¢10¢
 Barker's Ratchet..... 60¢5¢60¢10¢
 Barbers..... 60¢5¢
 Spotted..... 60¢5¢60¢10¢
 Osagood's Ratchet..... 40¢10¢50¢
 P. S. & W. Co., Peck's Patent..... 60¢

Brackets—

Shelf plain, Sargent's list, 55¢10¢55¢
 Shelf, fancy, Sargent's list, 60¢10¢10¢
 Reading, plain..... 50¢10¢60¢10¢5¢
 Reading, Rosette..... 60¢10¢60¢10¢10¢
 Bright Wire Goods—See Wire.

Broilers—

Hens' Self-1 Inch..... 9 10 9x11
 Basting..... \$ Per dos \$4.50 5.50 6.50
 New Haven..... 60¢
 Wire Goods Co..... 55¢10¢

Buckets, Well.

Galvanized—

Hill's..... \$ dos, 12 qt, \$4.25; 14 qt, \$5.55
 Iron Clad..... \$ dos, 14 qt, \$4.25¢4.50
 Helwig's Flat Iron Band..... \$3.75
 Helwig's Wired Top..... \$ dos \$4.00

Bull Rings—See Rings, Bull.

Butchers' Cleavers—See Cleavers

Butchers'.

Butts—

Brass—
 Wrought Brass..... 75¢10¢80¢
 Cast Brass, Tiebout's..... 50¢
 Cast Brass, Corbin's, Fast..... 35¢10¢
 Cast Brass, Loose Joint..... 35¢10¢

Cast Iron—

Fast Joint, Broad..... 50¢10¢2¢60¢
 Fast Joint, Narrow..... 50¢10¢60¢
 Loose Joint.....
 Loose Joint, Japanned.....
 Loose Joint, Jap. with Acorns.....
 Parliament Butts..... } -70¢10¢
 Mayer's Hinges..... } @ 75¢
 Loose Pin, Acorns.....
 Loose Pin, Acorns, Japanned.....
 Loose Pin, Acorns, Japanned.....
 Plated Tips..... 45¢

Wrought Steel—

Fast Joint, Narrow.....
 Fast Joint, Lt. Narrow.....
 Fast Joint, Broad.....
 Loose Joint, Broad..... } -70¢10¢
 Table Butts, Back Flaps, &c..... } @ 75¢
 Inside Blind, Regular.....
 Inside Blind, Light.....
 Loose Pin.....
 Bronzed Wrought Butts..... 50¢

Callipers—See Compasses.

Calks, Tee—

Gautier, One Prong, Blunt..... 5¢4¢
 Burke's, One Prong, Blunt..... 5¢4¢
 Burke's, Two Prong, Blunt..... 7¢4¢
 Burke's, One Prong, Sharp..... 6¢4¢7¢

Can Openers—See Openers, Can.

Cards—List January 23, 1891.

Watson's Cotton, Wool, Horse and
 File..... 25¢

Carpet Stretchers—See Stretchers

Carpet.

Carpet Sweepers—See Sweepers

Carpet.

Cartridges—See Ammunition.

Casters—

Bed..... { Brass..... 55¢55¢10¢
 Plate..... { Others..... 60¢60¢10¢
 Shadow Socket..... 40¢10¢
 Deep Socket..... 30¢10¢40¢
 Yale Casters, list May, 1884..... 30¢10¢40¢
 Yale, Gem..... 60¢60¢5¢
 Martin's Patent (Phoenix)..... 45¢10¢50¢
 Payson's Anti-friction..... 60¢60¢10¢
 Giant Truck Casters..... 80¢
 Stationary Truck Casters..... 50¢10¢
 Socket Truck Casters..... 60¢

Cattle Leaders—See Leaders, Cattle.

Cement.

Victor Elastic..... 5 2 pails \$ 5¢

Chain—

Trace, Wagon and Fancy Chains,
 List revised April 21, 1890..... 60¢
 American Coil, in case lots,
 3-16 3 5-16 3 7-16 3 4 1/2
 \$7.75 5.45 4.55 4.00 3.65 3.50 3.10 3.30
 Less than case lots, add 1/4¢ per lb.
 German Coil, list Oct. 6, 1890..... 60¢60¢2¢
 German Halter Chain, list Oct. 6, 1890..... 60¢60¢2¢

Covert Halter.

Covert Traces..... 60¢2¢
 Covert Heel Chain..... 50¢2¢
 Onedia Halter Chain..... 60¢60¢2¢
 Galvanized Pump Chain..... \$ 5 5¢4¢
 Jack Chain, Iron..... 75¢10¢80¢
 Jack Chain, Brass..... 75¢75¢10¢

Chalk—

White, case lots..... \$ gr 50¢
 Red, case lots..... \$ gr 27¢
 Blue, case lots..... \$ gr 70¢
 See also Crayons.

Chalk Lines—See Lines.

Chucks-

Seash Pat. each, \$8.00.....30%
Horse's Adjustable, each, \$7.00, 20@20%
Danbury.....each, \$6.00, 30@30%
Syracuse, Bala Pat.....25%
Graham Patent.....35%
Skinner's Patent Chucks.....35%
Combination Lathe Chucks.....40%
Universal Lathe Chucks.....40%
Independent Lathe Chucks.....40%
Drill Chucks.....10%
Union Mfg. Co.,
Victor.....\$3.50, 25%
Combination.....40%
Universal.....40%
Independent.....40%

Churns.

Tiffin Union, each, 5 gal. \$3.25; 7 gal.,
\$3.75; 10 gal., \$4.25.
McDermid Star Barrel Churn, each,
6 gal., \$2.00; 10 gal., \$2.75; 15 gal.,
\$3.00; 20 gal., \$3.25.

Clamps-

R. I. Tool Co.'s Wrought Iron.....25%
Adjustable, Cincinnati.....15%
Adjustable, Cincinnati.....15%
Adjustable, Stearn's.....30@30%
Stearns's Adjustable Cabinet and Cor-
ner.....30@30%
Cabinet, Sargent's.....65%
Carriage Makers', Sargent's.....70%
Carriage Makers', P. S. & W. Co., 40@10%
Eberhard Mfg. Co., 40@10%
Parallel, C. H. Bealy & Co., 25%
Warner's.....40@10%
Saw Clamps, see Vices, Saw Filers'
Carpenters', Cincinnati.....25@10%

Cleavers.

Butchers'.
Bradley's.....25@30%
L. & J. White.....20%
Beatty's.....40@40%
New Haven Edge Tool Co.'s.....40%
P. S. & W. Co., 39@25@39%
Foster Bros.....30%
Schulte, Lohoff & Co., 40@40%

Clips-

Norway, Axle, 1/4 & 5-16.....55@55%
2nd grade Norway Axle, 1/4 & 5-16.....55%
Superior Axle Clips.....60%
Norway Spring Bar Clips, 5-16.....60%
Wrought-Iron Felloe Clips.....\$ 5, 50%
Steel Felloe Clips.....\$ 5, 50%
Baker Axle Clips.....50%

Cloth and Netting, Wire-See
Wire, &c.

Cockeyes.....50%**Cocks, Brass.....50@25****Hardware list.....50@25****Coffee Mills-See Mills, Coffee.****Collars, Dog, &c.**

Medford Fancy Goods Co.....40@10%
Embossed, Gilt, Pope & Steven's list.....30@10%
Leather, Pope & Steven's list.....40%
Brass, Pope & Steven's list.....40%
Chapman Mfg. Company.....50@10@60%

Combs, Curry.

Fitch's.....50@10@50@10%
Rubber, per dos \$10.00.....20%
Perfect.....50%
Kellogg's.....50@10%
Sweet & Clark's.....50@10%

Compasses, Dividers, &c.-

Compasses, Calipers, Dividers, 70@70@10%
Bemis & Call Co.'s
Dividers.....60@25%
Compasses & Calipers.....50@25%
Wing and Inside or Outside.....50@25%
Double.....60%
(Call's Pat. In's).....50%
Excelsior.....50%
J. Stevens & Co.'s.....35@10%
Starr's
Spring Calipers and Dividers.....25@10%
Lock Calipers and Dividers.....25%
Combination Dividers.....25%

Coopers' Tools-See Tools, Coopers'.**Cord-****Sash.**

Common.....\$ 10@11%
Patent, good quality.....\$ 12@13%
White Cotton Braided, fair.....\$ 26@27%
Common Russia Sash.....\$ 13%
Patent.....\$ 15%
Cable Laid Italian Sash.....\$ 22@23%
Indian Cable Laid.....\$ 13%
Silver Lake
A Quality, White, 50'.....10@10%
A Quality, Drab, 50'.....10@10%
B Quality, White, 50'.....30@30%
B Quality, Drab, 50'.....31@33%
C Quality, White (only).....20@27%
Sylvan Spring, Extra Braided, White, 24'.....34%
Sylvan Spring, Extra Braided, Drab, 30'.....30%
Semper Idem, Braided, White.....30%
Egyptian, India Hemp, Braided.....25%
Samson
Braided, White Cotton, 50'.....30@30%
Braided, Drab Cotton, 50'.....30@30%
Braided, Italian Hemp, 50'.....30@30%
Braided, Linen, 30'.....30@30%
Rate & Co. Braided Wire, \$100 ft.....\$4%
Wire Picture.....75@10%

Corkscrews-See Screws, Cork.**Corn Knives and Cutters-See****Knives, Corn.****Crackers, Nut-**

Table (H. & B. Mfg. Co.).....40%
Blake's Pattern.....\$ dos \$2.00, 10%
Turner & Seymour Mfg. Co.....50%

Cradles-

Grain.....50@50@50@10@25%

Crayons.

White Crayons, \$ gr. 12@12%.....10%
D. M. Stewart Mfg. Co., Metal Work-
ers, \$ gr. \$2.50.....25%
D. M. Stewart Mfg. Co., Rolling Mill,
\$ gr. \$2.50.....25%
See also Chalk.

Crow Bars-See Bars, Crow.**Curry Combs-See Combs, Curry.****Curtain Pins-See Pins, Curtain.****Cutters-**

Meat.
Dixon's \$ dos.....40@5%
Nos.....1 2 3 4 5 6
\$14.00 \$17.00 \$19.00 \$20.00
Woodruff's \$ dos.....40@5%
Nos.....100 150
\$15.00 \$18.00
Hales Pattern \$ dos.....70@70%
Nos.....\$27.00 \$38.00 \$45.00

American.....30%

Nos.....1 2 3 4 5 6
Each.....\$5 \$7 \$10 \$35 \$50 \$60

Enterprise.....30%

Nos.....10 12 25 35 45
Each.....\$3 \$2.50 \$4 \$6 \$15

Great American Meat Cutter.....30%

Nos.....112 116 118 120 122
Each.....\$2.00 \$2.75 \$3.00 \$2.50 \$4.00

Miles' Challenge \$ dos.....45@45@10%

Nos.....1 2 3
\$22.00 \$30.00 \$40.00

Home No. 1.....\$ dos, \$26.00, 55@10%

Draw Cut, each:
Nos.....5 2 6 8
\$50 \$75 \$80 \$235.....30@25%

Great American.....30%

Beef Shavers (Enterprise).....30@10@30%

Little Giant.....50%

Chadborn's Smoked Beef Cutter, \$ dos.....\$66.00

Tobacco.

Champion.....20@10@30%

Wood Bottom.....\$ dos \$5.00@5.25

All Iron.....\$ dos \$4.25

Nashua Lock Co.'s, \$ dos, \$18.00@55%

Wilson's.....\$ dos, \$24, 55@10%

Sargent's.....\$ dos \$30.00, 40%

Washer.

Smith's Pat.....\$ dos \$12.00, 20@10@10%

Johnson's.....\$ dos \$11.00, 35@%

Fenny's \$ dos Pol. \$14; Jap'd, \$16.00, 55%

Appleton's.....\$ dos \$16.00, 30@10%

Bonney's.....\$ dos \$16.00, 30@10%

Cincinnati.....25@10%

Cutlery-

Pocket and Table.....Net prices

Wostenholm.....New list in preparation

Dampers, &c-

Dampers, Buffalo.....40@10%

Buffalo Damper Clips.....40@10%

Crown Damper.....40%

Excelsior.....40@10%

Diggers, Post Hole, &c-

Samson Post Hole Digger, \$ dos \$36.00, 25%

Fletcher Post Hole Augers, \$ dos \$36, 20%

Eureka Diggers.....\$ dos \$12.50@14.00

Lead's.....\$ dos \$38.00@9.00

Vaughan's Post Hole Auger, \$ dos \$13.00@14.00

Kohler's Little Giant.....\$ dos, \$18.00

Kohler's Hercules.....\$ dos, 15.00

Kohler's New Champion.....\$ dos, \$20.00

Schneider.....\$ dos, \$18.00

Ryan's Post Hole Diggers.....\$ dos \$24.00

Cronk's Post Bars.....\$ dos \$60.00

Gibbs Post Hole Digger, \$ dos \$30.00, 50%

Imperial, \$ dos \$15.....45%

Dividers-

See Compasses.

Dog Collars-See Collars, Dog, &c.**Door Springs-See Springs, Door.****Drawers.**

Money, \$ dos.....\$18@20

Drawing Knives-See Knives,**Drawing.****Drills and Drill Stocks-**

Blacksmiths' Self-Feeding, each \$7.50, 30%

Breast, P. S. & W.....40@10%

Breast, Wilson's.....30@5%

Breast, Millers Falls.....each \$3.00, 25%

Breast, Bartholomew's.....each \$2.50, 25%

Ratchet, Merrill's.....20@20@40%

Ratchet, Ingersoll's.....25%

Ratchet, Parker's.....\$ dos \$20@20%

Ratchet, Whitney's.....20@10%

Ratchet, Weston's.....20@20%

Ratchet, Moore's Triple Action.....25@30%

Ratchet, Curtis & Curtis.....30%

Whitney's Hand Drill, Plain, \$11.00.....30%

Adjustable, \$12.00.....30@10%

Wilson's Drill Stocks.....10%

Automatic Boring Tools.....\$1.75@1.85

Twist Drills-

Morse.....50@10@5%

Standard.....50@10@5%

Syracuse (Metal list).....50@10%

Cleveland.....50@10@5%

Williams.....50@10@10%

New Process.....50@10@5%

Graham's Pat. Groove Shank 50@10@5%

Drill Bits-See Augers and Bits.**Drill Chucks-See Chucks.****Dripping Pans-See Pans, Dripping.****Drivers, Screw.**

Douglas Mfg. Co.....30@20@10%

Dixon's.....50%

Buck Bros.....30%

Stanley E. & L. Co.'s

Varnished Handles.....65@10%

Black Handles.....60@10%

Sargent & Co.'s

No. 1 Forged Blade.....60@10@10%

No. 20, 30 and 60.....60@10@10%

P. S. & W.....70%

Knapp & Cowles.....60@30@70%

No. 2.....60@10@10@70@5%

No. 3.....60@5@60@10%

Nos. 4 and 00, Acme and Ideal.....50%

50@50@10@5%

Stearns.....25@10@25%

Gay & Parsons.....35@10%

Champion.....35@10%

Clark's Pat.....30@35%

Crawford's Adjustable.....30%

Kilrich's Socket and Ratchet.....35@50%

Kilrich's Spiral, new list.....35%

Colb's Common Sense \$ dos \$0.....35%

Syracuse Screw Driver Bit.....35@30@5%

Screw-Drive Bits.....\$ dos, 50@75%

Screw-Drive Bits, Parr's.....\$ gro \$6.25

Fray's Hol. Idle. Sets, No. 3, \$12.00, 25@25@10%

P. D. & Co.'s all Steel.....50%

Cincinnati.....55@10%

Brace Screw Drivers.....55@10%

Buck Bros' Screw-Drive Bits.....

Egg Beaters-See Beaters, Egg.**Egg Poachers-See Poachers, Egg.****Electric Bell Sets-See Bells, Elec-
tric.****Emery. - No. 4 to No. 54 to Flour, CF**

46 gr. 150 gr. F. FF.

Kegs, \$ 4.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

10 kegs, \$ 5.....4% 5 6 2% 4%

Boggin's Latches... 40x30x35
 Bronze Iron Drop Latches... 70x70 net
 Jap'd Store Door Handles... 1.25
 Plate, \$1.10; no Plate, \$0.85
 Barn Door, 10x14... 1.00
 Chest and Lifting... 70x

Wood-

Saw and Plane... 40x10x10x5
 Hammer, Hatchet, Axe, Sledge, &c... 40x
 Brad Axl... 40x
 Hickory Firmer Chisel, ass'd... 40x
 Hickory Firmer Chisel, large... 40x
 Apple Firmer Chisel, ass'd... 40x
 Apple Firmer Chisel, large... 40x
 Socket Firmer Chisel, ass'd... 40x
 Socket Framing Chisel, ass'd... 40x
 J. S. Smith & Co.'s Pat. File... 40x
 Auger, assorted... 40x
 Auger, large... 40x
 Pat. Auger, Ives... 40x
 Pat. Auger, Douglass... 40x
 Pat. Auger, Swan's... 40x
 Hoe, Rake, Shovel, &c... 40x

Hangers-

Barn Door, old pattern... 60x10x10x70
 Barn Door, New England... 60x10x10x70
 Samson Steel Anti-Friction... 60x
 Orleans Steel... 60x
 Hamilton Wrought Wood Track... 60x
 U. S. Wood Track... 60x
 Champion... 60x
 Rider and Wooster, Medina Mfg. Co.'s... 60x
 Hist... 60x
 Climax Anti-Friction... 60x
 Climax Anti-Friction for Wood Tracks... 60x
 Zenith for Wood Track... 60x
 Reed's Steel Arm... 60x
 Challenge, Barn Door... 60x
 Sterling... 60x
 Victor, No. 1, \$15.00; No. 2, \$16.50; No. 3, \$18.00... 60x
 Cheritree... 60x
 Rider's... 60x
 The Best... 60x
 Best Anti-Friction... 60x
 Duplex (Wood Track)... 60x
 Terry's Pat., 40x pr. 4 in, \$10.00; 5 in, \$12.00... 60x
 Terry's Steel Anti-Friction Leader 50x10x
 Terry's Steel Anti-Friction Ideal 50x10x
 Cronk's Patent, Steel Covered... 60x
 Wood Track Iron Clad, 40x ft. 10x... 60x
 Carrier Steel Anti-Friction... 60x
 Architect, 40x set \$3.00... 60x
 Bellows... 60x
 Felix, 40x set \$4.50... 60x
 Richards... 60x
 Lane's Standard... 60x
 Lane's New Standard... 60x
 Ball Bearing Door Hanger... 60x
 Warner's Pat... 60x
 Steamers' Anti-Friction... 60x
 Steamers' Challenge... 60x
 Faultless... 60x
 American, 40x set \$3.00... 60x
 Rider & Wooster, No. 1, 62x; No. 2, 75x... 60x
 Paragon, Nos. 1, 2 and 3... 60x
 Cincinnati... 60x
 Paragon, Nos. 5, 6, 7 and 8... 60x
 Crescent... 60x
 Nickel Cast Iron... 60x
 Nickel, Malleable Iron and Steel... 60x
 Scranton Anti-Friction Single Strap... 60x
 Wheel, 4 in. Wheel, 15.00; 5 in, 12.00... 60x
 Star... 60x
 May... 60x
 Barry, 60x... 60x
 Interstate... 60x
 Magic... 60x

Harness Snaps-See Snaps.

Hatchets-

American Axe and Tool Co.
 Blood's... 40x10
 Hunt's... 40x10
 Hurd's... 40x10
 Mann's... 40x10
 Peck's... 40x10
 Underhill's... 40x10
 Buffalo Hammer Co.
 Fayette B. Plumb... 40x10
 C. Hammond & Son... 40x10
 Kelly's... 40x10
 Sargent & W. Co.
 Ten Eyck Edge Tool Co... 40x10
 Collins... 40x10
 Schulte, Loboff & Co... 40x10

Hay and Straw Knives-See

Knives.

Hinges-

Blind Hinges-
 Parker... 75x25
 Palmer... 60x25
 Seymour... 70x25
 Huffer... 60x
 Clark's, Nos. 1, 3, 5, 40 and 60... 75x25
 Clark's, Nos. 1, 3, 5, 11, 12... 75x25
 Sargent's, No. 12... 75x25
 Reading's Gravity... 75x25
 Shepard's... 75x25
 No. 10... 75x25
 Niagara... 75x25
 Buffalo... 75x25
 Clark's Genuine Pattern... 75x25
 O. S. Lull & Porter... 75x25
 Acme, Lull & Porter... 75x25
 Queen City Reversible... 75x25
 Clark's Lull & Porter, Nos. 0, 1, 1 1/2, 2, 3, 4... 75x25
 North's Automatic Blind Hinges, No. 2, for Wood, \$0.00; No. 3, for Brick, \$1.10... 75x25

Gate Hinges-

Western... 40x40, 60x
 N. E. Reversible... 40x40, 55x
 Clark's, Nos. 1, 2, 3... 40x40, 55x
 W. Y. State... 40x40, 55x
 Automatic... 40x40, 55x
 Common Sense... 40x40, 55x
 Seymour's... 40x40, 55x
 Shepard's... 40x40, 55x
 Reed's Latch and Hinges... 40x40, 55x

Spring Hinges-

Union Spring and Blank Butts... 40x
 Year's Spring Hinge Co.'s list, March 1890... 40x

Acme... 80x
 U. S... 80x
 Empire and Crown... 80x
 Hero and Monarch... 80x
 American, Gem, and Star... 80x
 Oxford... 80x
 Barker's Double Acting... 80x
 Union Mfg. Co... 80x
 Buckman's... 80x
 Suckman's... 80x
 Chicago... 80x
 Wiles... 80x
 Devore's... 80x
 Rex... 80x
 Royal... 80x
 Reliable... 80x
 Champion... 80x
 Bardley's Patent... 80x
 Searns... 80x
 Niagara, Holdback pattern, per gross... \$14.00

Wrought Iron Hinges

List February 14, 1891.
 Strap and T... 50x10x
 Corrugated Strap and T... 50x10x
 Screw Hook and... 60x10x
 Strap... 25x36 in, 3x3
 Strap... 25x36 in, 3x3
 Screw Hook and Eye... 40x10x
 Strap... 25x36 in, 3x3
 Rolled Blind Hinges, Nos. 33 and 34... 50x10x
 Rolled Blind Hinges, Nos. 232 and 234... 50x10x
 Rolled Plate... 70x10x
 Rolled Raised... 70x10x
 Plate Hinges, 8, 10 & 12 in, 3x3
 "Providence" over 12 in, 3x3

Hoses-

D. & H. Scovill... 30x
 Lane's Crescent Planter Pattern... 45x55
 Lane's Razor Blade, Scovill Pattern... 30x
 Maynard, S. & O. Pat... 45x55
 Sandusky Tool Co., S. & O. Pat... 60x10x5
 Am. Axe and Tool Co., S. & O. Pat... 60x
 Chattanooga Tool Co., S. & O. Pat... 60x10x5
 Grub... 60x10x5
 Garden, Mortar, &c... 65x65x10x
 Planter's Cotton &c... 65x65x10x
 Warren Hoe... 60x
 Magic... 40x40

Hog Rings and Rings-See

Rings and Rings.

Hoisting Apparatus-See

Machines, Hoisting.

Hollow-Ware-See

Ware, Hollow.

Holders.

Bag.
 Sprengle's Pat... 40x15... 60x
 Bit.
 Extension... 40x15... 60x
 Barber's, 40x15... 60x
 Ives, 40x15... 60x
 Diagonal... 40x15... 60x
 Angular... 40x15... 60x
 File and Tool-
 Bala Pat... 40x15... 60x
 Nicholson File Holder's... 40x15... 60x
 Dick's Tool Holder... 40x15... 60x

Hooks-

Cast Iron-
 Bird Cage, Sargent's list... 60x10x10x
 Bird Cage, Reading's list... 60x10x10x
 Clothes Line, Reading's list... 60x10x10x
 Ceiling Sargent's list... 60x10x10x
 Harness, Reading's list... 60x10x10x
 Coat and Hat, Sargent's list... 60x10x10x
 Coat and Hat, Reading's list... 60x10x10x
 Wrought Iron-
 Cotton... 40x10
 Cotton Pat. (N. Y. Mallet & Handle W. K.)... 40x10
 Tassel and Picture (T. & S. Mfg. Co.)... 40x10
 Wrought Staples, Hooks, &c... 40x10
 Wire-
 Wire Coat and Hat, Gem, list April, 1886... 60x
 Wire Coat and Hat, Miles, list April, 1886... 60x
 Indestructible Coat and Hat... 60x
 Wire Coat and Hat, Standard... 60x
 Handy Hat and Coat... 60x
 Steady Ceiling Hooks... 60x
 Belt... 60x
 Atlas, Coat and Hat... 60x
 Miscellaneous.
 Grass, No. 2, \$2.00; No. 3, \$2.25; No. 4, \$2.50
 Nolin's Grass... 40x25
 Bush... 60x
 Whitcomb-Patent... 60x
 Hooks and Eyes-Malleable Iron... 70x70x10x
 Hooks and Eyes-Brass... 60x10x10x
 Fish Hooks, American... 60x
 Bench Hooks... 60x

Horse Nails-See

Nails, Horse.

Horse Shoes-See

Shoes, Horse.

Hose, Rubber-

Competition... 75x75x5
 Standard... 60x10x5
 Extra... 60x10x5
 N. Y. B. & P. Co., Extra... 60x10x5
 N. Y. B. & P. Co., Dundee... 60x10x5

Huskers-

Blair's Adjustable... 40x80
 Blair's Adjustable Clipper... 40x80
 Hubbard's Solid Steel... 40x80

Indurated Fiber-Ware-See

Ware, Indurated Fiber.

Irons.

Sad-
 From 4 to 10, at factory... \$100
 Self-Heating... \$2.50
 Self-Heating, Tailors... \$2.50
 Mrs. Pott's Irons... 60x55
 Enterprise Star Irons... 60x55
 XX Cold Handle Sad Irons... 60x55

Ideal Irons new list 50x10x50 & 10x10x
 Salmaster, Irons... 50x
 B. B. Sad Irons... 50x
 Combined Fluter and Sad Iron... 50x
 \$15.00... 50x
 Fox Reversible, Self-Fluter... 50x
 New England... 50x
 Mahony's Troy Pol. Irons... 50x
 Sensible Tailor's Irons... 50x
 National Self-Heating... 50x
 Soldering-
 Soldering Coppers... 50x
 Covert's Adjustable, list Jan. 1 1886... 50x

Irons, Pinking, per doz., 65x.

Jack Screws-See

Screws.

Jacks, Wagon.

Daisy... 83x4
 Victor... 83x4

Kettles-

Brass, Spun, Plain, list Jan. 1, '91, 25x55
 Brass, Spun, Plain, W. M. list Jan. 1, '91, 20x
 Kneaded and Tea-See Hollow Ware.

Keys-

Lock Ass'n list Dec. 30, 1886... 60x10x
 Eagle, Cabinet, &c... 60x55
 Hotchkiss' Brass Blanks... 40x
 Hotchkiss, Copper and Tinned... 40x
 Hotchkiss' Pad and Cab... 40x
 Ratchet Bed Keys... 40x
 Wollensak Tinned... 60x10x

Knife Sharpeners-See

Sharpeners, Knife.

Knives.

Butcher, Shoe, &c-
 Wilson's Butcher Knives, list Dec. 8, 1890... 25x
 Ames' Butcher Knives... 25x
 Foster Bros. Butcher... 40x
 Jordan's A.A.I., Butcher... 40x
 Nichols' Butcher Knives... 40x10x
 W. W. Wilson, Butcher, 6 in, \$2.60; 7 in, \$2.70; 8 in, \$3.30, ac.
 Ames' Shoe Knives... 30x25x
 Ames' Bread Knives... 40x15x
 Moran's Shoe and Bread... 40x
 Hay and Straw... 40x
 Table and Pocket... 40x
 Corn, Auburn Mfg. Co. Western Pat... 40x

Lawn

Bradley's... 10x
 Wadsworth's... 25x

Drawing

Witherby... 75x75x10
 P. S. & W... 75x75x10
 Mix... 75x75x10
 New Haven... 60x10x60x10x5
 Douglas... 75x75x10
 Watrous... 15x10x25x
 L. & J. White... 20x55
 Bradley's... 35x
 Adjustable Handle... 25x33x
 Wilkinson's Folding... 25x25x5
 Hay and Straw... 40x
 Lightning Mfrs price \$18.00, 25x
 But jobbers cut this price freely, often selling at \$8 & \$8.50.
 Wadsworth's... 40x75x40x10x5
 Carter's Needle... 40x11.00x11.50
 Heath's... 40x13.00x13.50
 Auburn Hay, Com. and Spear Point... 40x
 Auburn, Straw... 40x
 Nolin's Hay... 40x7.00x8.00

Mining

Am. (2d quality), 40x1 blade, 75x
 2 blades, \$13; 3 blades, \$18... net
 Lothrop's... 20x10x
 Smith's, 40x Single, \$2.00; Double, \$3.50
 Knapp & Cowles... 60x10x60x
 Buffalo Adjustable... 40x3.00x25x
 Buffalo Double Adj'table... 40x3.00x25x

Knobs-

Door Mineral... 60x65x
 Door Por. Jap'd... 70x75x
 Door Por. Nickel... 40x2.25x
 Door Por. Plated, Nickel... 40x2.25x
 Drawer, Porcelain... 60x10x10x10x
 Hematite Door Knobs... 40x10x50x
 Yale & Towne Wood, list Dec, 1885... 40x
 Furniture, Plain... 75x gro inch, 10x
 Furniture, Wood Screws... 35x10x
 Base, Rubber Tip... 70x10x55x
 Picture, Judd's... 60x10x70x
 Picture, Sargent's... 70x10x
 Picture, Hematite... 35x55x
 Shutter, Porcelain... 65x10x
 Carriage, Jap... 40x80x, 60x10x
 Bardley's Wood Door, Shutter, &c... 40x

Ladies-

Melting, Sargent's... 55x10x
 Melting, Reading... 55x10x
 Melting, Monroe's Pat... 40x4.00, 40x
 Melting, P. S. & W... 55x10x
 Melting, Warner's... 60x

Lanterns-

Plain with Guards, 40x... \$3.75x4.00
 Lift Wire, with Guards... \$4.00x4.25
 Square Plain, with Guards... \$3.75x4.00
 Sq. Lift Wire, with Guards... 40x4.50

Police Lanterns (including packages).

2 1/2-inch Bull's-eye Police regular... 40x
 3-inch Bull's-eye Police regular... 40x
 3-inch Bull's-eye Police flash light... 40x
 2 1/2-inch Bull's-eye Police flash light... 40x
 3-inch Bull's-eye Police flash light... 40x

Lawn Mowers-See

Mowers, Lawn.

Lenders, Cattle.

Humason, Beckley & Co.'s... 70x
 Sargent's... 60x10x
 Hotchkiss... 60x
 Peck, Stow & W. Co... 60x10x

Lemon Squeezers-See

Squeezers, Lemon.

Lifters, Transom.

Wollensak's:
 Class 3 and 4, Bronzed Iron... 50x
 Class 3 and 4, Bronze Metal... 35x
 Class 3 and 4, Brass... 35x
 Sky Light Lifters... 35x
 Crown, Eagle and Shield... 50x
 Reiter's, list Feb. 20, 1891... 50x10x10x5
 Bronzed Iron Rods... 50x10x10x5
 Brass, Real Bronze or Nickel Plate 30x

Excelsior... 60x10x35
 Shaw's... 60x10x
 Payson's:
 Universal... 60x
 Solid Grip... 60x
 Imperial... 60x10x

Lines-

Cotton and Linen Fish, Draper's... 60x
 Draper's and Tate's Chalk... 60x
 Draper's Mason's Linen, 84 ft, No. 1, \$1.25; No. 2, \$1.75; No. 3, \$2.25; No. 4, \$2.75; No. 5, \$3.25... 60x
 Cotton Chalk... 60x
 Samson Cotton, No. 4, \$2; No. 4 1/2, \$2.50; No. 5, \$3... 60x
 Silver Lake, Braided, No. 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100... 60x
 Mason's Colored Cotton... 45x
 Wire Clothes... 18 19 20
 100 ft... \$4.00 \$3.50 \$3.00
 Ventilator Cord, Samson Braided, White or Drab Cotton... 40x \$7.50, 30x

Locks, &c.-

Cabinet-
 Eagle, Gaylord Par... list March, '84, rev ker and Corbin... Jan. 1, '85... 65x10x70
 Delta, Nos. 36 to 39... 40x
 Delta, Nos. 51 to 63... 40x10x
 Delta, Nos. 86 to 98... 30x
 Stoddard Lock Co... 30x33x
 "Champion" Night Latches... 40x
 Barnes Mfg. Co... 40x40x10x
 Eagle and Corbin Trunk... 35x55x
 "Champion" Cab. and Comb... 35x55x
 Yale... 35x55x
 Romer's... 35x55x

Door Locks, Latches, &c.

R. & E. Mfg. Co., list Mar. 20, 1889... 65x10x70
 Mallory, Wheeler & Co., list July, '88... lower net prices often made.
 Sargent & Co., list Aug. 1, '88
 Reading Hardware Co., list Feb. 2, '88...
 Brittan, Graham & Mathes, list Jan. 1890... 60x10x10x
 Perkins' Burglar Proof... 60x25x
 Plate... 35x45x
 Barnes Mfg. Co... net prices
 Delta Flat Key... 30x
 L. & C. Round Key Latches... 30x10x
 L. & C. Flat Key Latches... 35x10x
 Romer's Night Latches... 15x
 Brooklyn Latches... 60x10x
 Shepherson or U. S... 60x
 Seed's N. Y. Hasp Lock... 60x

Padlocks-

List Dec. 23, '84... 75x10x
 Brittan, Graham & Mathes... 75x10x
 Yale Lock Mfg. Co.'s... net prices
 Eagle... 35x25x
 Sureka, Eagle Lock Co... 40x25x
 Romer's, Nos. 0 to 91... 60x
 Romer's Scandinavian, &c., Nos. 100 to 506... 15x
 A. E. Dells... 40x
 Champion Padlocks... 40x
 Hotchkiss... 40x
 Star... 45x
 Horseshoe... 40x40x10x
 Barnes Mfg. Co... 40x40x10x
 No. 1... 40x
 Brown's Pat... 35x
 Scandinavian... 60x90x10x
 E. T. Fram's Keystone Scandinavian... 45x10x
 No. 119, 120, 130 and 140... 60x10x
 Other Nos... 60x
 Ames Sword Co. up to No. 150... 40x
 Ames Sword Co. above No. 150... 60x
 Slaymaker Barry & Co... 35x55x
 No. 1010 line... 35x55x
 No. 41 line... 45x10x
 No. 61 line... 60x25x
 No. 21 line... 75x

Sash, &c.

Clark's, No. 1, \$10; No. 2, \$3 gr... 35x45x
 Ferguson's... 45x10x
 Morris and Triumph, list Aug. 16, 1886... 60x25x
 Victor... 60x10x25x
 Walker's... 10x
 Atwell Mfg. Co... 60x25x
 Reading... 60x10x60x10x10x
 Hammond's Window Springs... 40x
 Common Sense, Jap'd, Cop'd and Br'd... 40x4.00
 Common Sense, Nickel Plated... 40x10.00

Universal

Kempshall's Gravity... 60x
 Kempshall's Model... 60x60x10x
 Corbin's Daisy, list Feb. 15, 1886... 70x
 Payson's Perfect... 60x60x10x
 Hugin's Sash Balances... 35x55x
 Hugin's New Sash Locks... 35x55x
 Stoddard "Practical" 10x
 Ives' Patent... 60x10x60x10x5
 Liesche's, Nos. 100 and 110, 40x8; 105, 110.00... 30x10x
 Davis, Bronze, Barnes Mfg. Co... 60x
 Champion Safety, list March 1, 1888... 55x55x55x

Security

Buckeye... 70x
 Buckeye... 40x4.00

Lumber Tools-See

Tools, Lumber.

Lustre-

Four-ounce Bottles... 40x, \$1.75; 70x, gross... \$17.00

Machines.

Boring-
 Without
 Angers. Upright. Angular.
 Douglas... \$5.50 \$6.75... 50x
 Snell's, Rice's Pat. 5.50 6.75 40x10x10x
 Jennings... 5.50 6.75 45x10x10x
 Other Machines... 2.25 2.75... 40x
 Phillips' Patent
 With Angers 7.00 7.50...
 Miller's Falls... 7.50... 25x
 Fluting
 Knox, 4 1/2-inch Rolls... \$3.25 each... 35x
 Knox, 6-inch Rolls... \$3.00 each... 35x
 Eagle, 5 1/2-inch Roll... \$2.15... 35x
 Crown, 4 1/2 in, \$3.50; 6 in, \$4.00; 8 in, \$5.00 each... 35x
 Crown Jewel 6 in... \$3.50 each, 35x
 American, 5 in, \$3.00; 6 in, \$3.40; 7 in, \$4.50 each... 35x
 Domestic Hand Fluter... \$1.50
 Geneva Hand Fluter, White Metal... 40x \$12.50, 35x
 Crown Hand Fluter, Nos. 1, \$15.00; \$12.50, 30x
 Shepard Hand Fluter, No. 85... 40x 15.00... 45x

Shepard Hand Fluter, No. 110 # dos
\$11.00.....405
Shepard Hand Fluter, No. 98 # dos
\$5.00.....405
Clark's Hand Fluter # dos \$15.00.....355
Combined Fluter and Sad Iron.
dos \$15.00.....305
Buffalo # dos \$10.00.....105

Rotating—
Moore's Hand Holst, with Lock
Brake.....205
Moore's Differential Pulley Block.....405
Energy Mfg. Co.'s.....255
Sue Grip Steel Tackle Blocks.....255

Washing—
Anthony Wayne, # dos No. 1, \$51; No.
2, \$45; No. 3, \$45
Western Star, # dos No. 2, \$45; No. 3,
\$45

Walleets.
Hickory.....205
Lignumvite.....205
B. & L. Block Co., Hickory & L. V.
dos \$10.00.....205

Mattocks, Regular List.
dos \$10.00.....205

Measures—
Standard Fiberglass, No. 1, peck, #
dozen, \$4; 1/4 peck, \$3.50.

Meat Cutters—See Cutters, Meat.
Meanders, Harness—
Per doz.....\$2.00

Mills.
Coffee—
Box and Side, List Jan. 1, 1888.....605
American, Enterprise Mfg Co. # dos \$10.00
The Swift, Lane Bros.....205

Mining Knives—See Knives,
Mining.

Molasses Gates—See Gates, Mo-
lasses.

Money Drawers—See Drawers,
Money.

Mowers, Lawn.
Pennsylvania, New Model, Excelsior,
Continental, &c.....605
Philadelphia.....605
Perfection.....605
Easy.....605
Other Machines.....605

Muzzles—
Safety.....# dos, \$3.00, 255

Nails.
Cut and Wire. See Trade Report.

Wire Nails, Papered
Association list, July 15, '89.....755
Tack Mfrs' list.....705
Wire Nails, Standard Penny.
Card June 1, '89, base.....\$2.30 & \$2.35

Horse—
Nos. 6 7 8 9 10
Ausable.....255
Clinton, Pin. 10 17 18 19 14.....305
Essex.....255
Lyra.....105
Snowden 10 17 18 19 14.....305
Putnam.....255

Vulcan—
Nos. 21 22 23 24 25
Northwestern.....255
Globe.....255
Boston.....255
A. C.....255
O. B. K.....255
Maud S.....255
Champlain.....255
New Haven.....255
Saranac.....255
Champion.....255
Capewell.....255
Star.....255
Anchor.....255
Western.....255
Empire Bronzed.....145

Picture—
Brass Head, Sargent's list.....505
Brass Head, Combination list.....505
Porcelain Head, Sargent's list.....505
Porcelain Head, Combination list.....505
Miles' Patent.....405

Nail Pullers—See Pullers, Nail.
Nail Sets—See Sets, Nail.
Nail Crackers—See Crackers, Nut.
Nuts—List Dec. 18, 1889.

Square, Hex.
Hot Pressed.....5.40 6.00 off list.
Cold Punched.....5.00 5.10 off list.
In packages of 100 B, add 1-10% #
net; in packages less than 100 B, #
add 1/2% # net.

Oakum—
Best.....# 7 1/4 @ 7 1/4
U. S. Navy.....# 6 1/4 @ 6 1/4
Navy.....# 6 @ 6

Oilers—
Zinc and Tin.....655
Brass and Copper.....505
Malleable, Hammer Improved, No. 1,
\$3.00; No. 2, \$4.00; No. 3, \$4.40 # dos
105

Malleable, Hammer, Old Pattern, same
list.....405
Prior's Pat. or "Paragon" Zinc.....605

Prior's Pat. or "Paragon" Brass.....605
Olmstead's Tin and Zinc.....605
Olmstead's Brass and Copper.....605
Broughton's Zinc.....605
Broughton's Brass.....605
Gem P. D. & Co.....# gro. \$2
Steel, Draper and Williams.....605

Openers, Can.
Messenger's Comet.....# dos \$5.00, 355
American.....# gro. \$3.00
Duplex.....# dos \$2.50, 155
Lyman's.....# dos \$3.75, 205
No. 4 French.....# dos \$2.25, 555
No. 5, Iron Handle.....# gr \$6.00, 455
Eureka.....# dos \$2.50, 105
Sardine Scissors.....# dos \$2.75, 355
Star.....# dos \$2.50, 105
Sprague, No. 1, \$2.50; No. 2, \$2.50
Excelsior No. 1 \$2.50; No. 2, \$1.50.....405

World's Best, # gross, No. 1, \$12.00
No. 2, \$24.00; No. 3, \$36.00.....805
Universal, # dos \$3.00.....555
Domestic, # dos \$2.50.....455
Champion # dos \$2.00.....555

Packing, Steam—
Rubber—
Standard.....605
Extra.....505
N. Y. B. & P. Co., Standard.....505
N. Y. B. & P. Co., Empire.....605
N. Y. B. & P. Co., Salamander.....255
Jenkins' Standard, # dos \$2.00, 255
Miscellaneous—

American Packing.....105
Russia Packing.....145
Italian Packing.....135
Cotton Packing.....155
Jute.....175

Padslocks—See Locks.
Pails.
Galvanized Iron—

Quarts 10 12 14
Hill's Light Weight, # dos \$2.75, 300 3.25
Hill's Heavy Weight, # da. 3.00 3.25 3.75
Helwig's.....2.50 2.75 3.00
Sidney Shepard & Co.....2.35 2.85 3.00
Iron Clad.....2.50 2.75 3.00
Fire Buckets.....2.75 3.25 3.50
Buckets, see Well Buckets.

Indurated Fibre Ware—255
Star Pails, 12 qt.....# dos \$2.00
Fire, Stable and Milk, 14 qt.....# dos \$2.80
Standard Fibre Ware—

Plain, Dec'd
Water Pails, 12 qt., per doz.....\$4.00
Dairy Pails, 14 qt., per doz.....4.50
Fire Pails, No. 1, 12 qt per doz.....4.50
Fire Pails, No. 2, 14 qt per doz.....5.00
Sugar Pails.....6.00 6.50
Horse Pails.....5.00
Buggy Pails.....4.00
Shop Jars (bal. trap).....8.00 9.00
Chamber Pails, 14-qt.....6.50 7.50

Pans.
Dripping.
Small sizes.....# 2 6 1/2
Large sizes.....# 2 6 1/2
Silver & Co. (Covered).....405

Fry—
Standard List:
No.....1 2 3 4
dos.....\$3.00 \$3.75 \$4.25 \$4.75 \$5.25
No.....5 6 7 8
dos.....\$6.00 \$7.00 \$8.00 \$9.00
Polished, regular goods.....705
Acme Fry Pans.....605

Dust—
Steel Edge, No. 1.....# dos \$1.75

Paper and Cloth—
Sand and Emery—
List April 19, 1886.....505
Sibley's Emery and Crocus Cloth.....305

Parers.
Apple.
Advance.....# dos \$4.75
Baldwin.....# dos 5.25
Bonanza.....each 5.00
Champion.....# dos 7.25
Daisy.....# dos 4.00
Dandy.....each 7.50
Eureka, 1888.....each 10.00
Family Bay State.....# dos 12.00
Favorite.....# dos 5.00
Gem.....# dos 5.25
Gold Medal.....# dos 4.00
Ideal.....# dos 4.00
Improved Bay State.....# dos \$7.00 @ \$8.00
Little Star.....# dos 4.50
Monarch.....# dos 13.50
New Lightnings.....# dos 6.50
Oriole.....# dos 4.00
Penn.....# dos 4.00
Perfection.....# dos 4.00
Pomona.....# dos 4.00
Rocking Table.....# dos 4.50
Turntable.....# dos 13.50
Victor.....# dos 4.00
Waverly.....# dos 4.00
White Mountain.....# dos 4.25
72.....# dos 5.75
78.....# dos 6.00

White Mountain.....# dos \$4.50
Antrim Combination.....# dos \$5.50
Hoosier.....# dos \$1.50
Saratoga.....# dos \$5.50

Pencils—
Faber's Carpenters'.....high list 50%
Faber's Round Gills.....# gro \$5.25
Dixon's Lead.....# gro \$4.50
Dixon's Lumber.....# gro \$6.75
Dixon's Carpenters'.....105

Picks—
Railroad or Adze Eye, 5 to 6, \$12.00;
6 to 7, \$13.00.....605
Picture Nails—See Nails, Picture.

Pinking Irons—See Irons, Pinking.
Pins.
Bow—
Humason, Beckley & Co.'s.....605
Sargent & Co.'s.....\$17 and \$18.....605
Peck, Stow & W Co.....505

Curtain—
Silvered Glass.....net
White Enamel.....net

Excutehon.
Iron, list Nov. 11, 1885.....505
Brass.....605

Pipe, Wrought Iron—
List September 13, 1889:
1 1/2 and under, Plain.....555
1 1/2 and under, Galvanized.....455
1 1/2 and over, Plain.....655
1 1/2 and over, Galvanized.....525
Boiler Tubes.....555
2 1/2 to 3, smaller.....555
Larger than 3 1/2.....605

Planes and Plane Irons—
Wood Planes—
Molding.....355
Bench, First Quality.....505
Bench, Second Quality.....555
Bailey's (Stanley R. & L. Co.).....405

Iron Planes—
Bailey's (Stanley R. & L. Co.).....405
Miscellaneous Planes (Stanley R. & L.
Co.).....205
Victor Planes (Stanley R. & L. Co.).....205

Steel's Iron Planes.....355
Merfien Nail Iron Co.'s.....405
Davis's Iron Planes.....405
Birmingham Plane Co.....505
Gage Tool Co.'s Self-Setting.....205
Chaplin's Iron Planes.....405
Sargent's.....305
Standard Tool Co.....505

Plane Irons—
Butcher's.....\$5.00 @ \$5.25 to 2
Buck Bros.....305
Auburn.....355
Ohio.....355
Sandusky.....255
S. & J. White.....255

Plates.
Felloe.....# 6 @ \$3.40
Pliers and Nippers—
Button's Patent.....505
Hill's No. 2, 5 in., \$15.50; No. 4, 7 in.,
\$21.00 # dos.....205
Humason & Beckley Mfg Co.....505
Lindsay's Giant.....405
Gas Pliers, Custar's Nickel Plated.....605
Eureka Pliers and Nippers.....405
Russell's Parallel.....255
P. S. & W. Cast Steel.....505
P. S. & W. Tanners' Cutting Nippers.....add 65 dia 105

Carew's Pat. Wire Cutters.....305
Morrell's Parallel, # dos \$12.00.....305
Cronk's 8 in., \$15.00; 10 in. \$21.00.....405

Plumbs and Levels—
Regular List.....705
Diaton's.....505
Pocket Levels.....705
Davis Iron Levels.....305
Davis' Inclinoimeters.....105

Poles.
Buffalo Steam Egg Poachers, # dos, No.
1, \$8.00; No. 2, \$9.00.....255
Silver & Co., 6-Ring, # dos \$4; 3-Ring \$2

Pokes, Animal—
Bishop's L. X.....# dos \$6.00
Bishop's O. X.....# dos \$6.25
Bishop's Pioneer.....# dos \$3.75
Bishop's American.....# dos \$3.75
Eagle, Double Stale.....# dos \$5.75
Eagle, Single Stale.....# dos \$3.75
Buckeye, Single Stale.....# dos \$2.75

Police Goods.
R. I. Tool Co., Handcuffs, \$15.00 # dos 105
R. I. Tool Co., Leg Irons, \$25.00 # dos 105
Towser's.....355
Daley's Improved Handcuffs: 2 Hands,
Polished, # dos \$48.00; Nickleled,
\$67.00; 3 Hands, Polished, # dos
\$72.00; Nickleled, \$84.00.....255
J. P. Tool Co., Police Goods.....255

Polish Metal.
Prestoline.....305
Prestoline Paste.....335
Gaston's Silver Compound.....335

Polish, Stove.
Joseph Dixon's.....# gro \$6.00, 105
Gold Medal.....# gro \$4.50, 105
Mirror.....# pro \$6.00, 105
Lustro.....# gro \$4.75
Ruby.....# gro \$3.75
Rising Sun, 5 gro lots.....# gro \$6.50
Dixon's Plumbago.....# 85
Beyton's Noon Day, # gro.....13.00
Parlor Pride Stove Enamel, # gro
Yates' Liquid, 2 3 5 10 gal.....
gal.....\$0.30 .70 .00 .50

Yates Standard Paste Polish, 10 B cans,
1 # B 12 1/2
Jet Black.....# gro \$3.50
Japanese.....# gro \$3.50
Firestone.....# gro \$2.50
Diamond O. K. Enamel.....# gro \$19.00
Bonnell's Liquid Stove Polish, # gro \$9.00
Bonnell's Tarred Stove Polish, # gro \$6.00
Black Eagle Benzine Paste, 5 and 10 B
cans.....125
Black Jack Water Paste, 5 and 10 B
cans.....125
Nickel Plate Paste.....# gro \$6.00
Crown Paste.....# gro \$7.20
Crown Paste, in 5 and 10 B pails.....# 125
Black Flag, 5 and 10 B pails.....# 125
Black Flag, Liquid, in bottles, # gro \$3.50

Poppers, Corn—
Round or Square, 1 qt., # gr \$10.00 @ 10.50
Round or Square, 1 1/2 qt., # gr \$15.00 @ 15.50
Round or Square, 2 qt., # gr \$18.00 @ 19.00

Post Hole and Tree Augers
and Diggers—See Diggers, Post
Hole, &c.

Potato Parers—See Parers, Potato.
Pots.
Glue—
Tinned.....405
Enamelled.....405
Family, Bowser's Eureka.....405
Family, L. F. C.'s "Handy".....505

Presses.
Fruit and Jelly—
Enterprise Mfg. Co.....305
Hemle.....# dos \$3.50
Shepard's Queen City.....405
Silver & Co.....# dos \$2.75

Pruning Hooks and Shears—
See Shears.
Pushers.
Nail.
Saratoga.....# dos \$18.00, 335
Curtis Hammer.....# dos \$6.00
Grant, No. 1.....# dos \$18.00, 105
Grant, No. 2.....# dos \$15.00, 105
Pelican.....# dos \$9.00, 385
Eclipse.....# dos \$15.00, 305

Pushers.
Hot House, Awning, &c.....605
Japanese Screw.....605
Brass Screw.....605
Japanned Slide.....605
Japanned Clothes Line.....605
Empire Sash Pulley.....555
Moore's Sash, Anti-Friction.....505
Hay Fork, Solid Eye, \$4.00; Swivel,
\$4.50.....# dos \$6.00 @ 6.50
Hay Fork, Anti-Friction, 5 in. Solid,
\$5.70.....# dos \$6.00 @ 6.50
Hay Fork, "P" Common and Pat.
Bush.....305
Hay Fork, Tarbox Pat. Iron.....205
Hay Fork, Reed's Self-Lubricating.....605
Shank's Patent.....455
Tackle Blocks—See Blocks
Moore's Anti-Friction 5 in. Wheel, # dos
\$12.00.....405

Pumps—
Clatern, Best Makers.....605
Pitcher Spout, Best Makers.....675
Pitcher Spout, Cheaper Goods.....705

Punches.
Saddlers or Drive, good, # dos.....805
Bemis & Call Co.'s Cast Steel Drive.....505
Bemis & Call Co.'s Springfield Socket.....505
Spring, good quality.....# dos \$2.50 @ 2.60
Spring, Leach's Pat.....155
Bemis & Call Co.'s Spring and Check.....155
Solid Tinner's, F. S. & W. Co., # dos \$1.44, 555
Tinner's Hoof Punches F. S. & W. Co.....355
Rice Hand Lances.....155
Avery's Revolving.....405
Avery's Saw Set and Punch, See Saw Sets.

Rail—
Sliding Door, Wrt Brass, # dos.....155
Sliding Door, Bronzed Wrt's Iron, # ft. 75
Sliding Door, Iron, Painted, # foot 44, 405
Barn Door, Light In.....# 44
Per 100 feet.....\$2.00 \$2.50 \$3.10, 105
B. D. for N. E. Hangers.....

Small, Med. Large.
Per 100 feet.....\$3.15 2.70 3.25, net
Terry's Steel Rail, # foot.....455
Victor Track Rail, 7 1/2 # foot.....505
Carrier Steel Rail, # foot.....505
Moore's Wrought Iron.....305

Rakes—
Cast Steel, Association goods.....605
Cast Steel, outside goods.....605
Malleable.....705
Gibbs Lawn Rake.....\$12.00, 505
Canton Lawn Rake.....\$9.00, 505
Ft. Madison Frise Bow Brace and Feet,
less.....505
Fort Madison Steel Tooth Lawn Rake,
foot.....255

Razors—
J. R. Torrey Razor Co.....205
Wootenholme and Butcher, \$10.00 to 2,
105
Jordan's AAA, list Nov. 1, 1889.....605
Jordan's Old Faithful, list Nov. 1, '89, 505
Galvanic.....# dos \$15.00

Razor Straps—See Straps, Razor.
Rings and Ringers.
Ball Rings.
Union Nut Co.....555
Sargent's.....605
Hotchkiss' low list.....305
Humason, Beckley & Co.'s.....705
Peck, Stow & W Co.'s.....505
Elrich Hdwr. Co., White Metal, low list,
505

Hog—
Top of the Hill Rings.....# dos \$2.00
Top of the Hill Rings.....# dos \$1.50
Hill's Improved Rings.....# dos \$1.25
Hill's Old Style Rings.....# dos \$1.125
Hill's Tongs.....# dos \$1.00
Hill's Rings.....# dos \$1.00
Perfect Rings.....# dos \$1.50
Perfect Rings.....# dos \$1.25
Blair's Hog Rings.....# dos \$2.00
Blair's Hog Rings.....# dos \$1.00
Champion Rings.....# dos \$2.00
Champion Rings, Double.....# dos \$2.50
Brown's Rings.....# dos \$1.50
Electric Hog Rings.....# dos \$1.50
Electric Hog Rings.....# dos \$2.00

Rivets and Burrs—
Iron, list Nov. 17, '87.....405
Copper.....505
Coppered Iron, Bettina Brand.....605

Rivet Sets—See Sets.
Rods.
Star, Brass.....355
Star, Black Walnut.....# dos 405

Rollers.
Barn Door, Sargent's list.....605
Acme Moore's Anti-Friction.....555
Union Barn Door Roller.....705

Rope.
Manila.....# 1/4 in. and larger.....105
Manila.....# 1/4 in. and 5-16 in.....105
Manila.....# 1/4 in. and 5-16 in.....115
Manila, Tarred Rope.....# 95
Manila, Hay Rope.....# 105
Sisal.....# 1/4 inch and larger.....75
Sisal.....# 1/4 in. and 5-16 in.....75
Sisal, Hay Rope.....# 75
Sisal, Tarred Rope.....# 75
Sisal, Medium Laid Yarn.....# 6
New Zealand.....# 1/4 in. and larger.....75
New Zealand.....# 1/4 in. and 5-16 in.....75
New Zealand, Hay Rope.....# 75
New Zealand, Tarred Rope.....# 65
Note—Manufacturers press on above
1/2 less, f.o.b. factory.

Cotton Rope.....# 135 @ 155
Jute Rope.....# 65 @ 85
Wire—
List May 1, 1886.....325
Iron, Galvanized.....405
Cast Steel.....405

Rules.
Boxwood.....505
Ivory.....505
Starrett's Rules and Straight Edges,
Steel.....555

Sad Irons—See Irons, Sad.
Sand and Emery Paper and
Cloth—See Paper and Cloth, Sand
and Emery.

Sash Cord—See Cord, Sash.
Sash Locks—See Locks, Sash.
Sash Weights—See Weights, Sash.
Sausage Stuffers or Fillers—
See Stuffers or Fillers, Sausage.

Saws.
Diston's Circular.....455
Diston's Cross Cuts.....455
Diston's Hand.....305
Woodrough & W. Partin.....255
Hand, Panel and Rip.....255
Narrow Champion Cross Cuts with
Handles, # foot.....305
Champion Thin Back Cross Cuts, #
foot.....355
Champion Extra Thin Back Cross
Cuts, # foot.....315
One Man Champion Cross Cuts, #
foot.....405
Wheeler, Madden & Clemons Mfg. Co.
Hand, Panel and Rip.....305
Narrow Champion Cross Cuts with
Handles, # foot.....305
Champion Thin Back Cross Cuts, #
foot.....355
Champion Extra Thin Back Cross
Cuts, # foot.....315
One Man Champion Cross Cuts, #
foot.....405

Atkins' Circular Shingle and Heading
Atkins' Silver Steel Diamond X Cuts
Atkins' Special Steel Dexter X Cuts
Atkins' Special Steel Diamond X Cuts
Atkins' Champion and Electric Tooth
Atkins' Hollow Back X Cuts
Atkins' Mulay, Mill and Drag
Atkins' One-Man Saw, with handles
Peace Circular and Mill
Peace Hand Panel and Rip
Peace Cross Cuts
Richardson's Circular and Mill
Richardson's X Cuts
Richardson's Hand, &c.
C. E. Jennings & Co., Hand, Panel
and Rip
Hack Saws—
Griffin's, complete
Griffin's Hack Saw, Blades
Star Hack Saws and Blades
Eureka and Crescent
Scroll—
Lester, complete, \$10.00
Rogers, complete, \$4.00
Barnes' Builders' and Cabinet Makers'
Barnes' Scroll Saw Blades
Saw Frames—See Frames, Saw.
Saw Sets—See Sets, Saw.
Saw Tools—See Tools, Saw.
Scales—
Hatch, Counter, No. 171, good quality,
Hatch, Tea, No. 161
Union Platform, Plain
Union Platform, Striped
Chatillon's Eureka Trip Scales
Chatillon's Eureka
Chatillon's Favorite
Family, Turnbills
Riehle Bros.' Platform
Scale Beams—See Beams, Scale.
Scissors, Fluting
Scrapers—
Adjustable Box Scraper (R. B. & L. Co.)
Box, 1 Handle
Box, 2 Handle
Dedance Box and Ship
Foot, Common
Ship, R. L. Tool Co.
Screen Window and Door
Frames—See Frames.
Screw Drivers—See Drivers, Screw.
Screws—
Bench and Hand—
Bench, Iron
Bench, Wood
Bench, Wood, Hickory
Hand, Wood
Lag, Blunt Point, Flat Jan. 1, 1890
Coach and Lag, Gimlet Point, Flat Jan.
1, 1890
Hand Rail, Saw
Hand Rail, E. & J. W.
Hand Rail, Am. Screw Co.
Jack Screws, Millers Falls list
Jack Screws, P. S. & W.
Jack Screws, Sargent
Jack Screws, Stearns
Cork—
Humason & Beckley Mfg. Co.
Williamson's
Horse Bros. & Hulbert
Machine—
Flat Head, Iron
Round Head, Iron
Wood—
Flat January 1, 1891
Flat Head Iron
Round Head Iron
Round Head Brass
Flat Head Brass
Round Head Brass
Round Head Bronze
Rogers' Drive Screws
Scroll Saws—See Saws, Scroll.
Scythes.
Grain
Grass
Scythe Snaths—See Snaths, Scythe.
Sets.
Aval and Tool.
Alken's Sets, Avals and Tools
Fray's Adj. Tool Hdl., No. 1, \$12; No. 2, \$18;
No. 3, \$24
Miller's Falls Adj. Tool Hdl.
Henry's Combination Haft
Brad Sets
Stanley's Excelsior
Stanley's No. 1, \$7.50; No. 2, \$4.00; No. 3,
\$2.50
Nail—
Square
Round
Buck Bros.
Cannon's Diamond Point
Rivet.
Regular list
Saw—
Stillman's Genuine
Stillman's Imita.
Common Lever
Morrill's No. 1, \$11.00; No. 2, \$4.00
Leach's, No. 0, \$9.00; No. 1, \$15.00
ash's

Hammer, Hotchkiss
Hammer, Bemis & Call Co.'s new Pat.
Bemis & Call Co.'s Lever and Spring
Hammer
Bemis & Call Co.'s Plate
Bemis & Call Co.'s Cross Cut
Alken's Genuine
Alken's Imitation
Hart's Pat. Lever
Dixon's Star
Leopold
Atkin's Lever
Atkin's Criterion
Croissant (Keller), No. 1, \$15.00; No. 2,
\$24.00
Avery's Saw Set and Punch
Chieftain H. R. Co.'s Superior
Sharpeners, Knife.
Parkins.
Rosewood Handles
Rosewood or Cocobolo
Shaves, Spoke.
Iron
Wood
Bailey's (Stanley R. & L. Co.)
Stearns
Cincinnati
Goodell's
Shears—
American (Cast) Iron
Barnard's Lamp Trimmers
Timmer
Seymour's, List, Dec. 1891
Heinrich's, List, Dec. 1891
Heinrich's Tailor's Shears
First quality C. S. Trimmers
Second quality C. S. Trimmers
Acme Cast Shears
Diamond Cast Shears
Clipper
Victor Cast Shears
Howe Bros. & Hulbert, Solid Forge
Steel
Chicago Drop Forge & F. Co., Solid
Steel Forged
Clausen Shear Co., Japanned
Clausen Shear Co., Nickel, same list
Galvanic, 3/4 to 9 in., \$1.00 to \$1.50
Pruning Shears and Hooks.
Dixson's Combined Pruning Hook and
Saw
Dixson's Pruning Hook
R. & Lee & Co.'s Pruning Tools
Pruning Shears, Henry's Pat.
Henry's Pruning Shears
Wheeler, M. & C. Co.'s Combination
Dunlap's Saw and Chisel
J. Mallinson & Co., No. 1, \$6.25; No. 2, \$7.25
P. S. & W. Co.
Tinners, &c.—
Shears and Snips (P. S. & W.)
Snips, J. Mallinson & Co.
Sheaves—
Sliding Door—
M. W. Co., list July, 1888
R. & E., list Dec. 18, 1888
Corbin's list
Patent Roller, Hestfeldt's
Russell's Anti-Friction, list Dec. 18,
1888
Moore's Anti-Friction
Sliding Shutter—
R. & E., list Dec. 18, 1888
Sargent's list
Reading list
Ship Tools—
L. & J. White
Shoes, Horse, Mule, &c.—
Horse—
Burden's, Perkins', Phoenix and Bryden's
Bryden's Boss at factory
Bryden's Frog Pressure, at factory
Add \$1 per keg to above prices.
Os, Wrought—
Ton lots
1000 lb. lots
600 lb. lots
Shot—
Drop, up to BB, 25-b bag
Drop, up to BB, 5-b bag
Drop, BB and larger, 25-b bag
Drop, BB and larger, 5-b bag
Buck and Chilled, 25-b bag
Buck and Chilled, 5-b bag
Dust Shot, 25-b bag
Dust Shot, 5-b bag
Shovels and Spades—
Ames' Shovels, Spades, &c., list Nov. 1,
1888
Nots—Jobbers frequently give 5%
extra on above
Griffith's Black Iron
Griffith's C. S.
Griffith's Solid C. S. R. R. Goods
St. Louis Shovel Co.
Hussey, Binns & Co.
Hubbard & Co.
Lehigh Mfg. Co.
H. M. Myers Co.
Payne Pettibone & Son
Remington's (Lowman's) Pat.
Rowland's, Black Iron
Rowland's Steel
Shovels and Tongs—
Iron Head
Brass Head
Sieves—
Hann's Tin Rim
Buffalo Metallic, S. & A.
Shaker (Barber's) Pat. Flour Sifters
Electric
A. & W. Sifters
Hunter's
Smith's Adjustable Sifters

Smith's Adjustable Milk Strainer
Smith's Adjustable T. & C. Strainer
Snaths, Wooden Rim—
Mesh 18, Nested
Mesh 20, Nested
Mesh 24, Nested
Skels. Thimble—
Western list
Columbus Wrt. Steel, Special net prices
Coldbrookdale Iron Co.
Seneca Falls Pattern
Utica P. & T. Skels.
Utica Turned and Fitted
Slates—
School, by case
Snaps, Harness, &c.—
Anchor (T. & S. Mfg. Co.)
Fitch's (Bristol)
Hotchkiss
Andrews
Seneca's Patent Guarded
German, new list
Covert, New Patent
Covert, New R. E.
Covert Spring
Snaths, Scythe.
List
Soldering Irons—See Irons, Soldering.
Spittoons, Cuspidors, &c.
Standard Fiberglass—
Cuspidors, 3/4-inch, \$1.00; No. 5, \$8;
No. 6, \$5.00
Spittoons, Daisy, 8-inch, No. 1, \$4; 10
and 11 inch, \$6
Spoke Shaves—See Shaves, Spoke.
Spoke Trimmers—See Trimmers, Spoke.
Spoons and Forks—
Tinned Iron—
Basting, Cen. Stamp Co.'s list
Solid Table and Tea, Cen. Stamp Co.'s
list
Buffalo S. & Co.
Silver-Plated—(4 mos. or 5% cash 30
days)
Meriden Brit. Co., Rogers
C. Rogers & Bros.
Rogers & Bro.
Reed & Barton
Wm. Rogers Mfg. Co.
Simpson, Hall, Miller & Co.
Holmes & Edwards Silver Co.
L. Boardman & Son
Miscellaneous.
Holmes & Edwards Silver Co.
No. 67 Mexican Silver
No. 30 Silver Metal
No. 34 German Silver
No. 50 Nickel Silver
No. 49 Nickel Silver
Wm. Rogers Mfg. Co.
Rogers' Silver Metal
15% Rogers' German Silver
15% Rogers' Nickel Silver
German Silver, Hall & Hixon
Nickel Silver
Britannia
Boardman's Nickel Silver
Boardman's Britannia Spoons, case
lots
Springs—
Door—
Torrey's Rod, regular size
Gray's, \$20.00
Bee Rod \$20.00
Warner's No. 1, \$2.50; No. 2,
\$3.50
Gem (Coll.) list April 19, 1886
Star (Coll.) list April 19, 1886
Victor (Coll.)
Champion (Coll.)
Philadelphia, 5 in., \$5.00; 8 in., \$7.75
Cowell's, No. 1, \$15.00; No. 2,
\$15.00
Rubber, complete, \$4.50
Hercules
Rshaw Door Check and Spring
Carriage, Wagon, &c.—
Elliptic, Concord, Platform and Halt
Scroll
Cliff's Bolster Springs
Squares—
Steel and Iron
Nickel-Plated
Try Square and T Bevels
Dixson's Try Square and T Bevels
Winterbottom's Try and Miter
Starrett's Micrometer Caliper Squares
Avery's Flush Bevel Squares
Avery's Bevel Protractor
Squeezers.
Fodder—
Blair's
Blair's "Climax"
Lemon—
Porcelain Lined, No. 1
Wood, No. 2
Wood, Common
Dunlap's Improved
Samuels
Jennings' Star
The Boss
Dean's, No. 1
Little Giant
King
Hotchkiss Straight Flash
Silver & Co., Glass
Standard Fiber Ware—See Ware, Standard Fiber.
Staples.
Blind—
Barbed, 3 in. and larger
Barbed, 3 in.

Fence staples, Galvanized, Same price
Fence Staples, Plain, as B'rd Wire.
See Trd. Rep.
Steelyards
Stocks and Dies—
Blacksmith's
Waterford Goods
Butterfield's Goods
Lighting Screw Plate
Reece's New Screw Plates
Reversible Ratchet
Gardner
Steps, Bench.
Morrill's
Hotchkiss
Weston's, No. 1, \$10; No. 2, \$0.25
McGill's
Cincinnati
Stone—
Hindustan No. 1, 3/4; Ax, 3/4; Slips
No. 1, 4/4
Sand Stone
Washita Stone, Extra
Washita Stone, No. 1
Washita Stone, No. 2
Washita Slips, No. 1, Extra
Washita Slips, No. 1
Arkansas Stone, No. 1, 4 to 6 in.
Arkansas Stone, No. 1, 6 to 9 in.
Turkey Oil Stone, 4 to 8 in.
Lake Superior, Chase
Lake Superior Slips, Chase
Seneca Stone, Red Paper Brand
Seneca Stone, High Rounds
Seneca Stone, Small White
Steve Polish—See Polish, Steve.
Stretchers, Carpet.
Cast Steel, Polished
Cast Iron, Steel Points
Socket
Jullard's
Strops, Razor—
Genuine Emerson
Imitation
Torrey's
Badger's Belt and Com.
Lamont Combination
Jordan's Pat. Padded, list Nov. 1, 89
Electric
Stuffers or Fillers, Sausage—
Miles' "Challenge," \$20.00
Perry
Enterprise Mfg. Co.
Sweepers, Carpet.
Bissell No. 5
Bissell No. 7 New Drop Pan
Bissell, Grand
Grand Rapids
Crown Jewel, No. 1, \$18.00; No. 2,
\$19.00; No. 3, \$20.00
Jewel
Improved Parlor Queen
Nickel
Japanned
Excelsior
Garland
Parlor Queen
Housewife's Delight
Queen
Queen, with band
King
Weed, Improved
Hub
Fog Wheel
Fog Wheel
Monarch
Goshen
Ladies' Friend
Advance
Supreme
Tacks, Brads, &c.—
List Oct. 19, 1889. Standard Weights.
Carpet Tacks—
American Iron, Blued
Am'can Iron, Tin'd or Cop'd
Steel, Plain or Bright
Steel, Tinned or Coppered
Swedes Iron, Blued
Swedes Iron, Tinned or Cop'd
American Iron Cut Tacks
Swedes Ir. Uphol's Tacks, Blued
Swedes Iron Upholsterers' Tacks
Tinned
Gimp and Lace Tacks, Blued
Gimp and Lace Tacks, Tinned
Swedes Iron Basket or Trimmers
Tacks
Miners' Tacks
Bill-Posters or Railroad Tacks
Bill-Posters or Railroad Tacks
Tinned
Copper Tacks
Copper Finish & Trunk Nails
Cigar Box Nails
Zinc Glaziers' Points
Picture-Frame Points
Looking-Glass Tacks
Brush Tacks
Tin-Capped Trunk Nails
Finishing Nails
Trunk and Cleut Nails, Black and
Tinned
Common and Patent Brads
Hungarian Nails
Basket and Chair Nails
Leathered Carpet Tacks
Miscellaneous—
Double Pointed, 190 count
Wire Carpet Nails
Basket and Chair Nails
Plymouth Rock Steel Carpet Tacks

Wire Brads & Nails, see Nails, Wire.
Steel-Wire Brads, R. & E. Mfg. Co.'s
list.....50¢10¢

Tapes, Measuring—
American.....40¢40¢5¢
Spring.....40¢40¢5¢
Chesterman's, Regular list.....25¢30¢

Thermometers—
Tin Case.....30¢80¢10¢
Thimble Skelins—See Skelins.

Ties, Bale—Steel
Standard Wire, list.....50¢10¢5¢

**Timbers' Shears, &c.—See Shears,
Timbers', &c.**

Tinware—
Stamped, Japanned and Piced, list
Jan. 20 1887.....70¢10¢70¢10¢5¢

Tire Benders, Upsetters, &c—
See Benders and Upsetters, Tire.

Tools.
Coopers'—
Bradley's.....20¢
Barton's.....30¢50¢5¢
L. & J. White.....30¢50¢5¢
Alberion Mfg. Co.....25¢
Beatty's.....30¢
Sandusky Tool Co.....30¢50¢5¢
Shaves, Cincinnati Tool Co.....30¢

Lumber.
Ring Peavies, "Blue Line".....\$ doa \$90.00
Ring Peavies, Common.....\$ doa \$18.00
Steel Socket Peavies.....\$ doa \$21.00
Mail Iron Socket Peavies.....\$ doa \$19.00
Cant Hooks, "Blue Line".....\$ doa \$16.00
Cant Hooks, Common Finish.....\$ doa \$14.00
Cant Hooks, Mail Socket Clasp, "Blue
Line" Finish.....\$ doa \$16.00
Cant Hooks, Mail Socket Clasp, Com-
mon Finish.....\$ doa \$14.50
Cant Hooks, Clip Clasp, "Blue Line"
Finish.....\$ doa \$14.00
Cant Hooks, Clip Clasp, Common Fin-
ish.....\$ doa \$12.00
Hand Spikes.....\$ doa 5 ft., \$15.00; 8 ft.,
\$20.00

Pike Poles, Pike & Hook, \$ doa, 12 ft.,
\$11.50; 14 ft., \$12.50; 16 ft., \$14.50;
18 ft., \$17.50; 20 ft., \$21.50.
Pike Poles, Pike only, \$ doa, 12 ft.,
\$10.00; 14 ft., \$11.00; 16 ft., \$13.00; 18
ft., \$15.00; 20 ft., \$20.00.
Pike Poles, not ironed, \$ doa, 12 ft.,
\$6.00; 14 ft., \$7.00; 16 ft., \$8.00; 18
ft., \$12.00; 20 ft., \$16.00.
Setting Poles, \$ doa, 12 ft., \$14.00; 14
ft., \$15.00; 16 ft., \$17.00.
Swamp Hooks.....\$ doa \$13.00

Saw.
Atkins' Perfection.....\$ doa \$12.00
Atkins' Excelsior.....\$ doa \$6.00
Atkins' Giant.....\$ doa \$4.00

**Tobacco Cutters—See Cutters, To-
bacco.**

**Transom Lifters—See Lifters,
Transom.**

Traps—
Game—
Kewhouse.....40¢40¢5¢
Oneida Pattern.....70¢10¢
Game, Blake's Patent.....40¢10¢5¢

Mouse and Rat—
Mouse Wood Choker, \$ doa \$1.00; 10¢
Mouse, Round Wire.....\$ doa \$1.50; 10¢
Mouse, Cage Wire.....\$ doa \$2.50; 10¢
Mouse, Catch-em-alive.....\$ doa \$3.50; 15¢
Mouse, Bonanza.....\$ doa \$9.00; \$10.00
Rat, Decoy.....\$ gr \$10.00; 10¢
Ideal.....\$ gr \$10.00; 10¢
Cyclone.....\$ gr \$5.25
Hotchkiss Metallic Mouse, 5-hole traps,
\$ doa, 90¢; in full cases, \$ doa.....75¢
Hotchkiss Imp. Rat Killer.....\$ gro \$18.50
Hotchkiss New Rat Killer.....\$ gro \$16.50
Schuyler's Rat Killer.....\$ gro \$15.00

Triers—
Butter and cheese.....25¢
Trimmers, Spoke.

Bonney's.....\$ doa \$10.00; 50¢
Stearns'.....\$ doa \$10.00; 50¢
Ives', No. 1, \$15.00; No. 2, \$13.00; \$ doa.....55¢10¢
Douglas'.....\$ doa \$9.00; 20¢
Cincinnati.....\$ doa \$15.00; 25¢

Trowels—
Lothrop's Brick and Plastering.....20¢10¢5¢35¢
Reed's Brick and Plastering.....15¢
Dison's Br'k and Plastering.....25¢
Peace's Plastering.....25¢
Clement & Maynard's.....20¢
Rose's Brick.....15¢20¢
Brade's Brick.....25¢
Worrall's Brick and Plastering.....20¢
Garden.....70¢

Trucks, Warehouse, &c.—
R. & L. Block Co.'s list, '82.....40¢

Tubes, Boiler—
See Pipe.

Twine—
No. 9, 1/4 and 1/2 B. Balls.....25¢ 34¢
No. 12, 1/4 and 1/2 B. Balls.....25¢ 33¢
No. 18, 1/4 and 1/2 B. Balls.....22¢ 32¢
No. 24, 1/4 and 1/2 B. Balls.....22¢ 32¢
No. 36, 1/4 and 1/2 B. Balls.....20¢ 31¢
No. 24, 1/4 and 1/2 B. Balls.....20¢ 31¢
Chalk Line, Cotton, 1/4 B. Balls.....25¢
Mason Line, Linen, 1/4 B. Balls.....25¢
2-Ply Hemp, 1/4 and 1/2 B. Balls (Spring
Twine).....15¢4¢
3-Ply Hemp, 1/4 B. Balls.....15¢4¢4¢
3-Ply Hemp, 1/2 B. Balls.....15¢4¢4¢
Cotton Wrapping, 5 Balls to a lb.....15¢4¢
2, 3, 4 and 5-Ply Jute, 1/4 B. Balls.....10¢
Wool.....13¢14¢
Paper.....13¢14¢
Cotton Mops, 6, 9, 12 and 15 B. to do.....13¢

Vices—
Solid Box.....50¢10¢50¢10¢5¢
Parallel—
Fisher & Norris Double Screw.....15¢10¢
Stephens'.....25¢30¢
Parker's.....30¢35¢
Wilson's.....30¢35¢
Howard's.....40¢
Bonney's.....40¢10¢
Millers Falls.....40¢40¢10¢
Trenton.....40¢40¢10¢
Merrill's.....15¢30¢
Buckley's.....50¢10¢40¢
Backus and Union.....15¢10¢
Double Screw Leg.....15¢10¢
Prentiss.....20¢25¢
Simpson's Adjustable.....40¢
Moore's.....30¢
Massey Quick Action.....20¢ 25¢ 3¢
Saw Vices—
Bonney's, Nos. 2 & 3, \$15.00.....40¢10¢
Stearns'.....25¢10¢50¢10¢40¢
Stearns' Silent Saw Vices.....35¢40¢35¢

Sargent's.....60¢10¢
Hopkins'.....\$ doa \$17.50; 10¢
Reading.....40¢10¢
Wentworth.....30¢10¢
Miscellaneous.
Combination Hand Vices.....\$ gr \$42.00
Cowell Hand Vices.....30¢
Bauer's Pipe Vices.....10¢
Cincinnati.....25¢10¢
Enterprise Pipe Vices, each.....\$3.00
Massey Combination Pipe.....40¢

Wagon Boxes—See Boxes, Wagon.
**Washer Cutters—See Cutters
Washer.**

Wagon Jacks—See Jacks, Wagon.
Ware, Hollow, Enameled, &c.

Cast Iron, Hollow—
Stove Hollow-Ware.....60¢10¢
Ground.....50¢10¢10¢
White Enameled Ware.....50¢10¢10¢
Maslin Kettles.....70¢
Boilers and Saucepans.....40¢10¢50¢5¢
Tinned Boilers and S'pans.....40¢10¢50¢5¢
Rustless Hollow-Ware.....50¢50¢5¢
Gray Enameled-Ware.....50¢

Maslin Kettles.....60¢10¢10¢
Boilers and Saucepans.....40¢5¢
Enameled—
Agate and Granite Ware, list Jan. 1,
1889.....35¢10¢
Ironclad Enameled Ware.....dis 35¢10¢

Kettles.
Galvanized Tea-Kettles—
Inch.....6 7 9
Each.....55¢ 60¢ 75¢

Standard Fiber—
Per Dozen.
Plain, Dec'd.....\$2.00 \$2.25
Wash-Basins, 10 1/2 in.....2.25 2.75
Wash-Basins, 12 in.....2.75 3.00
Keelers, 1 1/2 in.....4.00 4.50
Cuspidors.....4.00 4.50
Sputtoons, "Daisy," 3 in.....4.00 4.50
Pork Measures.....4.00 4.50
Half-peck Measures.....3.50

See also Patls.
Indurated Fiber—25¢
Sputtoons, No. 2, \$ doa.....\$9.00
Basins, Ringed, \$ doa, No. 2, \$4.50;
No. 3.....\$4.30
Washbasins, Nested, Nos. 0, 1, 2 and 3 (4
pieces), \$ nest.....\$7.50
Keelers, Nested, Nos. 1, 2, 3 and 4 (4
pieces), \$ nest.....\$9.70
Butter Bowls 15, 17 and 19-inch (3
pieces), \$ nest.....\$3.25
Liquid Measures, pt., qt., 3 qt. and fun-
nel (4 pieces), \$ set.....\$3.00
Dry Measures, 1, 2, 4, 5 and 16 qt. (5
pieces), \$ set.....\$3.00
See also Patls.

Silver Plated, Hollow—
4 mo. or 5 \$ cash in 30 days.
Reed & Barton.....
Heriden Britannia Co.....40¢5¢
Simpson, Hale, Miller & Co.....
Rogers & Brother.....
Hartford Silver Plate Co.....
William Rogers Mfg. Co.....40¢5¢5¢

Washers—
Size hole.....5-16 1/4 1/2 3/4 1 1/2
Washers.....6 5 8 5/8 8
In lots less than 200 B., add 1/4¢, 5-B
boxes 1¢ to list.

Wedges—
Iron.....\$ 2 1/4
Steel.....\$ 3 1/4
Weights, Sash—
Solid Eyes.....\$ ton \$18¢\$19

Well Buckets, Galvanized—8
Buckets, Well, Galvanized.

Wheels, Well.
8 in., \$2.25; 10 in., \$2.70; 12 in., \$3.35

Wire and Wire Goods—
Iron—
Market.
Br. & Ann., Nos. 0 to 18.....77 1/2¢
Cop'd, Nos. 0 to 18.....75¢
Galv., Nos. 0 to 18.....67 1/2¢
Tin'd, Tinned list Nos. 0 to 18.....67 1/2¢
Stone.
Br. and Ann'd, Nos. 10 to 18.....77 1/2¢
Bright and Ann'd, Nos. 19 to 20.....80¢
Br. and Ann'd, Nos. 27 to 30.....82 1/2¢
Tinned.
Tinned Broom Wire, 18 to 21, \$ doa.....5¢
Galvanized Fence, Nos. 5 and 9.....70¢
Annealed Fence, Nos. 5 and 9.....70¢
Annealed Grape, Nos. 10 to 15.....80¢
Brass, list Jan. 18, 1884.....85¢
Copper, list Jan. 18, 1884.....85¢
Barb Fence.....See Trade Report
Annealed Wire on Spools.....54¢
Main's Steel and Tin'd on Spools.....54¢
Main's Brass and Cop. on Spools.....45¢
Tate's Spooled, Tinned and Annealed.....45¢
Tate's Spooled Cop. and Brass.....45¢
Cast Steel Wire.....\$6.00 to \$8.3¢
Steel Wire, 12 to 30.....60¢70¢
Wire Clothes Lines, see Lines.
Wire Picture Cord, see cord.

Bright Wire Goods—
Standard list.....50¢10¢

Wire Cloth and Netting.
Painted Screen Cloth, good quality,
\$ 100 sq. ft., \$1.40
Galvanized Wire Netting.....70¢10¢75¢

Wire Rope—See Rope, Wire.

Wrenches—
American Adjustable.....40¢
Baxter's Adjustable "B".....40¢10¢50¢
Baxter's Diagonal.....40¢10¢50¢
Coe's Genuine.....50¢25¢
Coe's "Mechanics".....50¢10¢25¢
Girard Standard.....65¢10¢
Lamson & Sessions' Engineers'.....60¢10¢
Lamson & Sessions' Standard.....70¢10¢
P. S. & W. Agricultural.....75¢5¢ 7¢
Girard Agricultural.....\$10
Lamson & Sessions' Agric'l.....
Bemis & Call's
Pat. Combination.....35¢
Merrick's Pattern.....25¢
Brix's Pattern.....25¢
Cylinder or Gas Pipe.....40¢5¢
No. 3 Pipe.....40¢10¢
Allen's Pocket (Bright).....\$6.00 50¢10¢
The Favorite Pocket.....\$ doa \$4.00, 40¢
Webster's Pat. Combination.....35¢
Boardman's.....30¢10¢
Always Ready.....25¢25¢
Alligator.....50¢
Donohue's Engineer.....50¢10¢
Acme, Bright.....40¢25¢
Acme, Nickleed.....40¢25¢
Hercules.....70¢
Walker's.....55¢25¢
Diamond Steel.....55¢25¢
Cincinnati Brace Wrenches.....25¢10¢
Taft's Vise Wrench.....55¢10¢25¢

Wringers, Clothes—
List September 20, 1890, 25 cash.

Wrought Goods—
Staples, Hooks, &c., list Jan. 12, 1888,
85¢85¢10¢

PAINTS, OILS AND COLORS.—Wholesale Prices.

Animal and Vegetable Oils.

Linseed, City, raw, per gal.	57	62
Linseed, City, boiled.....	60	65
Linseed, Western, raw.....	55	60
Lard, City, Extra Winter.....	57 1/2	62 1/2
Lard, City, Prime.....	55	60
Lard, City, Extra No. 1.....	45	47 1/2
Lard, City, No. 1.....	40	43 1/2
Lard, Western, prime.....	54	59
Cotton-seed, Crude, prime.....	32	33
Cotton-seed, Crude, off grades.....	25	30
Cotton-seed, Summer Yel- low, prime.....	40	41
Cottonseed, Summer Yel- low, off grades.....	32	33
Sperm, Crude.....	72	73
Sperm, Natural Spring.....	72	73
Sperm, Bleached Spring.....	73	75
Sperm, Natural Winter.....	73	75
Sperm, Bleached Winter.....	73	75
Whale, Crude.....	54	59
Whale, Natural Winter.....	54	59
Whale, Bleached Winter.....	54	59
Whale, Extra Bleached.....	58	60
Sea Elephant, Bleached Winter.....	63	64
Menhaden, Crude, Sound.....	25	27
Menhaden, Crude, Southern Menhaden, Light Pressed.....	31	32
Menhaden, Bleached Winter.....	31	32
Menhaden, Extra Bleached.....	33	35
Tallow, City, prime.....	44	45
Tallow, Western, prime.....	44	45
Cocanut, Ceylon.....	64	7
Cocanut, Cochina.....	64	7
Cod, Domestic.....	43	45
Cod, Foreign.....	43	45
Red Blaine.....	55	58
Red Saponified.....	44 1/2	48
Bank.....	27	28
Straita.....	28	29
Olive, Italian, bbls.....	72	73
Nutmeg, prime.....	55	58
Palm, prime, Lagos.....	65	66

Mineral Oils.

Black, 20 gravity, 25 @ 30 cold test.....	7 1/2	8
Black, 20 gravity, 15 cold test.....	8 1/2	9
Black, 20 gravity, summer, cold test.....	8 1/2	9
Cylinder light, filtered.....	15	20

Cylinder, dark, filtered.....	12	15
Cylinder, dard, s'm refined.....	10	18
Paraffine, 25 1/2 @ 24 gravity.....	13 1/2	14
Paraffine, 25 gravity.....	12 1/2	13
Paraffine, 25 gravity.....	9 1/2	10
Paraffine, red, 21 @ 22 grty.....	12	13
Paraffine, red, 21 @ 22 grty.....	13	14

Paints and Colors.

Barytes, Foreign, \$ ton.....	\$23.00	\$24.00
Barytes, Amer. floated.....	30.00	\$32.00
Barytes, Amer. No. 1.....	19.00	\$20.00
Barytes, Amer. No. 2.....	13.00	\$16.00
Barytes, Amer. No. 3.....	11.00	\$12.00
Blue, Celestial.....	5	8
Blue, Chinese.....	50	55
Blue, Prussian.....	25	40
Blue, Ultramarine.....	8	25
Brown, Spanish.....	1/2	1
Brown, Vandyke, Amer.....	3	3 1/2
Brown, Vandyke, English.....	6	8
Carmine, No. 40, in bulk.....	3.10	3
Carmine, No. 40, in boxes or barrels.....	3.30	3
Carmine, No. 40, in ounce bottles.....	4.75	5
Chalk, in bulk.....	2.30	3.00
Chalk, in bbls., \$ 100 B.....	33	40
China Clay, English.....	13.00	\$18.00
Cobalt Oxide, prep'd.....	3.90	4
Cobalt Oxide, black.....	lots 100 B. 3.60	4
Cobalt Oxide, black.....	less 100 B. 2.65	4
Green, Paris, in bulk.....	14	15 1/2
Green, Paris, small pack.....	14 1/2	15 1/2
Green, Chrome, ordinary.....	3	11
Green, Chrome, pure.....	22	25
Lead, Eng., B.B. white, dry or in oil; Kegs, lots less than 1000 B.....	7 1/2	8 1/2
Kegs, lots 1000 B to 5 tons.....	6 1/2	7 1/2
Kegs, lots 5 tons to 12 tons.....	6 1/2	7 1/2
Kegs, lots 12 tons and over.....	6 1/2	7 1/2
Lead White in oil, 25 @ 30 tin pails, add to keg price.....	1	1
Lead, White, in oil, 15 1/2 @ 30 tin pails, add to keg price.....	1	1

Lead, White, in oil, 1 to 5 B as-
sorted tins, add to keg price.
Lead, Red, bbls. and 1/2 bbls.....6 1/2 7
Lead, Red, kegs.....6 1/2 7 1/2
Litharge, kegs.....6 1/2 7 1/2
Litharge, bbls. and 1/2 bbls.....6 1/2 7
Tungst. Carb.—Lead and Litharge.—On
lots of 1000 B or over, 60 days' time or
2 1/2 % discount for cash if paid within 15
days of date of invoice.
Ocher, Rochelle.....1.35 1 1/2
Ocher, French, Washed.....1 1/2 2 1/2
Ocher, German, Washed.....1 1/2 2 1/2
Ocher, American.....1 1/2 2 1/2
Orange Mineral, English.....9 9 1/2
Orange Mineral, French.....10 10 1/2
Orange Mineral, German.....9 1/2 10
Orange Mineral, American.....8 8 1/2
Paris White, English Cliff-
stone.....1.00 1 1/2
Paris White, American.....70 75
Red, Indian, English.....5 1/2 7
Red, Indian, American.....2 6 1/2
Red, Turkey.....9 14
Red, Tuscan.....9 11
Red, Venetian, American.....1.00 1 1/2
Red, Venetian, English.....1.00 1 1/2
Sienna, Italian, Burnt and
Powd.....5 6 1/2
Sienna, Ital., Burnt Lumps.....14 1/2 15
Sienna, Ital., Raw, Powd.....5 6 1/2
Sienna, Ital., Raw Lumps.....2 3 1/2
Sienna, American, Raw.....14 1/2 15
Sienna, American, Burnt
and Powdered.....14 1/2 15
Talc, French.....1 1/2 1 1/2
Talc, American.....1 1 1/2
Terra Alba, Fr'ch, \$ 100 B.....90 100
Terra Alba, English.....50 60
Terra Alba, American No. 1.....70 75
Terra Alba, American No. 2.....40 50
Umber, Turkey, Bnt. and
Powd.....3 1/2 4
Umber, Lurkey Bnt.Ln.....3 1/2 4
Umber, Turkey, Raw and
Powdered.....3 1/2 4
Umber, Turkey, Bnt. Lmpt.....3 1/2 4
Umber, Turkey, Bnt. Amer.....14 1/2 15
Umber, Turkey, Bnt Amer.....14 1/2 15
Yellow, Chrome.....10 25
Vermilion Americ. Lead.....11 1/2 17
Vermilion, Quicks'er, bulk.....64 66
Vermilion, Quicks'er, bags.....65 67
Vermilion, Quicksilver,
small pack.....60 71
Vermilion English Import.....80 85

Vermilion, imitation, Eng.....8 25
Vermilion, Trieste.....87 1/2 90
Vermilion, Chinese.....90 95
Whiting, Common, \$ 100 B.....40 45
Whiting, Gliders.....50 55
Zinc, American, dry.....4 1/2 5
Zinc, French, Red Seal.....8 1/2
Zinc, French, Green Seal.....8 1/2
Zinc, French, V. M. X.....7 1/2
Zinc, Antwerp, Red Seal.....7 1/2
Zinc, Antwerp, Green Seal.....8 1/2
Zinc, German, L. Z. O.....6 1/2
Zinc, V. M. in Poppy Oil.....
Seal, lots of 1 ton and
over.....10 1/2 11 1/2
lots less than 1 ton.....11 1/2 11 1/2
Zinc, V. M. in Poppy Oil,
Red Seal.....10 1/2 10 1/2
lots of 1 ton and over.....10 1/2 10 1/2
lots of less than 1 ton.....10 1/2 10 1/2
Discounts.—French Zinc.—Discounts
to buyers of 10-bbl. lots of one or as-
sorted grades, 1 %; 25 bbls, 2 1/2 %; 50 bbls,
4 %. No discount allowed on less
than bbl. lots.

Colors in Oil.

Blue, Chinese.....	35	40
Blue, Prussian.....	59	65
Blue, Ultramarine.....	13	18
Brown, Vandyke.....	7	12
Green, Chrome.....	8	13
Green, Paris.....	16	19 1/2
Sienna, Raw.....	7	14
Sienna, Burnt.....	7	14
Umber, Raw.....	7	10
Umber, Burnt.....	7	10

Patty.
In wooden pails.....@ .01 1/4
In bladders.....@ .02 1/4
In bladders.....@ .02 1/4

Spirits Turpentine.
In regular bbls.....39 1/2 @ ..
In machine bbls.....39 1/2 @ ..

Glue.
Low Grade.....\$ 8 @ 10
Cabinet.....12 @ 14
Medium White.....13 @ 15
Extra White.....17 @ 20
French.....10 @ 15
English.....10 @ 15
Irish.....12 @ 15

